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This study proposed that a principal's behavior is affected by the feedback he receives from teachers and by his own commitment to change his behavior. The behaviors of 206 elementary school principals (volunteers) were rated by teachers at the beginning and end of the study; the teachers also used the rating scale to describe an ideal principal. The principals were then placed in one of four feedback groups: the first to receive both "actual" feedback ratings of their own behaviors) and "ideal" feedback (ratings of an ideal principal); the second to receive only "ideal" feedback; the third, only "actual"; and the fourth, no feedback. Moreover, the principals in each group either had not been asked to commit themselves to change or had been asked to choose one of two areas in which to commit themselves--task assistance behaviors or personal support behaviors. It was hypothesized that group 1 would change more positively (approach the ideal) than the other groups and that group 2 would similarly surpass groups 3 and 4. It was also hypothesized that commitment would cause more positive change than no commitment, particularly in the behavioral area selected by the principal. Although covariance analysis of scores did not support the hypotheses, chi square analysis and change patterns suggest that feedback, especially "ideal" alone or "ideal" and "actual", promote positive change and that "actual" feedback alone and solicited commitments to change may inhibit such change. (LP)

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THE EFFECTS OF FEEDBACK AND COMMITMENT TO CHANGE ON THE BEHAVIOR OF ELEMENTARY SCHOOL PRINCIPALS

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Stanford, California

March, 1969

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CHAPTER I

The Problem

The question of the effectiveness of systematic feedback in producing specific behavior change has become a major focus of educational research. The present investigation was aimed at continuing the research into this question. It considered the effects of feedback from teachers on the behavior of elementary school principals. It studied, secondly, the differential effects of different feedback treatments on the behavior of these principals. A third question which the study examined is the effect of a commitment to make an effort to change behavior on the degree of change observed.

In this study "feedback" consists of summarized ratings of the behavior of the principal as perceived by his teachers. Feedback includes mean ratings of the "Ideal" principal (expectations) and of the "Actual" principal (perceived behavior) on 12 items, and graphed frequency distributions of teachers' responses on a ten-point scale. "Commitment" is defined for the purposes of this study as the act of stating an intention or a desire to change behavior in one of two specified areas of principal-teacher interaction.

REVIEW OF RELATED LITERATURE

Administrative Theory and Research Related to Feedback

The importance of accurate perceptions of role expectations, and the consequent importance of feedback, in facilitating relevant organizational learning are well supported in administrative theory and research. In the following paragraphs a sample of this literature is cited as a basis for the proposition that such perceptions and feedback are important. According to Presthus (1958), ". . . Individual accommodation to an organization is essentially a matter of learning." The effectiveness of this learning, he suggested, depends on habits, perception, and drive. "Our perception of a situation defines our behavioral limits in the sense that its speed and accuracy determine the appropriateness of the role we choose" (pp. 54-55).

Role theory and the consideration of the individual's adaptation to an organizational role have provided a basis for much organizational analysis and research. The study of role and role conflict rests in part on the assumption that normative behaviors are assigned to positions in a society or a subsociety. Coladarci and Getzels (1955) suggested that the operational question in the dyadic administrative relationship is, "How congruent or discrepant are expectations for one another's behavior up and down the administrative hierarchy" (p. 16)? Congruency of expectations facilitates communicative and administrative processes, while incongruency impedes these processes. This suggests that an increase in feedback about expectations may improve understanding and congruency, and hence facilitate the administrative process.

Getzels and Guba (1957) developed the nomothetic-idiographic model of role adaptation or role conflict as a theoretical base for the consideration of the administrative process. The administrator in an organization, as seen in this model, acts on the basis of his needs and the expectations which he perceives to be held for him by referent groups. As areas of possible role conflict for the administrator, Getzels and Guba identified disagreement within a referent group defining a role (p. 432). The administrator's perception of the expectations held for him is proposed as one of the basic elements of his administrative style.

The Getzels-Guba model of administrative role behavior has provided the theoretical framework for descriptive and experimental studies of the organizational context of schools. The application of the model in such studies has been directed operationally toward the organizational effects of congruency or discrepancy of expectations held for the role occupant. Results, as described in studies cited below, generally suggest that various aspects of the efficiency and morale of an organization are related to congruency of expectations. An effective means of feedback to an administrator may increase his awareness of discrepancies in expectations and provide a means of reducing organizational conflicts.

Gross, Mason, and McEachern (1958) studied role consensus on the position of the superintendency. They postulated that "... lack of consensus among group members is a major dysfunctional element affecting the achievement of a group's goals." They based hypotheses of consensus of role definition on modification of expectations resulting from perception increasing over time as a result of increasing interaction and consequent opportunities to learn the expectations held for a role by the other (p. 177). Systematically increasing the opportunities to learn such expectations may aid the development of role consensus.

Guba and Bidwell (1957) applied the nomothetic-idiographic model of role behavior in their study of 24 schools in the Chicago area. The study examined relationships between expectations held for the role of the teacher, perceptions of expectations held, and ratings of effectiveness, satisfaction, and confidence in leadership. A major conclusion of the study was that all aspects of staff relations that were measured -- effectiveness, satisfaction, and confidence in the principal's leadership -- were related to the extent to which perceptions of expectations and behaviors held by the principal and his teachers coincide.

Shipnuck (1954) studied hostility as perceived in the behavior of the principal. Principals and teachers in 13 elementary schools in a Bay Area school district participated in the study. Findings indicate that teachers' morale correlated significantly with the teachers' perception of hostility in the behavior of the principal ($r = .44$, significant at the .001 level). If the principal's perception of hostility in his own behavior was similar to the perception held of his behavior by the teachers, he was able to predict faculty morale more accurately ($p < .001$). Shipnuck concludes that the "approach to locating potential areas of friction between teachers and principals by utilizing interrelated perceptions appears to be an effective technique" (p. 69). In a study of principal-teacher relationships in 13 Seventh Day Adventist schools in California, Koenig (1962) obtained results similar to those obtained by Shipnuck. He found that in schools where the principal could predict faculty morale accurately, morale was high ($r = .30$, significant beyond the .01 level).

Studies such as these (those cited by Shipnuck and Koenig) must be accepted with some reservation. They seem vulnerable to the artifact discussed by Gage and Cronbach (1955) whereby consistent tendencies to make predictions reflecting favorable self-regard tend to be more "accurate" by definition when the "others" (persons whose attitudes are being predicted) are indeed more favorable either to the predictor or to things he is associated with. Hence the positive r between accuracy and the degree to which morale is good, etc., is artifactual. The accuracy variance is spurious in that the predictions all tend to be favorable and the accuracy results from variance in the things predicted (goodness of morale, for example) rather than appropriate or correlated variance in the predictions themselves. It is important that findings of such correlational studies be investigated further under experimental conditions.

A case study analysis of two principals by Waite (1958) interpreted ratings of the principal by the principal and by the staff, depth interviews with each faculty member, observations and district records. Waite concluded that "In winning the support of the school staff, the principal must conform to behaviors which are regarded as proper for his role from traditions, the institutional-cultural setting of the school, and individual staff members" (p. 165). He suggested that it is important to develop procedures by which the principal can predict the behaviors teachers expect of their leaders.

In the organizational research described above, perception of expectations is considered an important determinant of behavior. Aspects of morale and efficiency in the system have been found in these studies to be related to these perceptions. Suggestions for improving inter-personal relations between the administrator and his staff focus on (1) increasing congruency of expectations between the administrator and his staff, and (2) increasing the administrator's awareness of the perceptions of his behavior held by staff members. The present study deals with two questions related to expectations held for the role of the principal, (1) Does systematic feedback of information about expectations and perceptions of behavior provide a means of facilitating organizational processes? and (2) Do different feedback treatments affect the behavior of the principal differentially?

Social Psychological Theory and Research on Feedback in the Educational Setting

Feedback from group members to group leaders in educational settings may reveal discrepancies between the leader's perceptions of his own behavior and perceptions of his behavior held by group members. It has been proposed (Gage, Runkel, and Chatterjee, 1963) that these discrepancies set up an imbalance or incongruency, as described by Heider (1958), Festinger (1957), and Newcomb (1959), which motivates a consequent effort to resolve the imbalance. Of the several possible resolutions, the two proposed as most probable were (1) that the group leader will attempt to modify the perceptions of the group members toward a more realistic (in his view) perception of his behavior, and (2) that the group leader will attempt to modify his actual behavior toward the behavior desired by the group members. The study described here stems from this same theoretical model.

The first question which this study examined is the effectiveness of feedback from teachers in changing the behavior of the principal. Systematic feedback of information about perception of behavior has been found to produce behavior changes in the desired direction. In the studies by Gage, Runkel, and Chatterjee, by Daw (1964), and by Hovenier (1966), cited below, "feedback" consisted of information summarized from ratings made by the client group on a set of items describing behaviors generally considered desirable in the superior. In each of these studies the behavior most like that of the "ideal" superior (teacher, principal or department head) was described on a Likert rating scale. The behavior most like that perceived in the "actual" superior was described on the same rating scale. Medians and frequency distributions of the responses from the client group on each item were presented graphically to the superior in feedback booklets designed by the experimenters.

Gage, Runkel, and Chatterjee (1963) investigated the effects of feedback from sixth grade students on teacher behavior. Teachers were given information on ratings of their "actual" behavior as seen by the students, and ratings of "ideal" teacher behavior as seen by these students. It was hypothesized that the behavior of teachers who received student feedback would change so as to be closer to that of the students' "ideal" teacher on posttest ratings than the behavior of teachers who did not receive feedback. The differences between adjusted post-actual ratings of experimental (N = 80) and the control (N = 90) groups were examined by analysis of covariance. Differences on ten of the twelve items were in the hypothesized direction.

Using similar protocols, Daw (1964) and Hovenier (1966) conducted feedback experiments at Stanford. Daw investigated the effects of feedback from teachers on the behavior of elementary school principals. Teachers rated the behavior of their principals on pre- and posttests. Feedback on pretest median ratings was given to principals in the experimental group (N = 151), and withheld from principals in the control groups (N = 143; N = 161). Means of the experimental and control groups were computed from the median scores of principals on each item. Differences in posttest means between Control Group I (pretest-posttest control) and Control Group II (posttest-only control) were not statistically significant on any of the 12 items, nor on the overall mean of Items 1 - 12. Differences in adjusted posttest means of "actual" ratings of the experimental and control groups were statistically significant at the .05 to the .001 level on 10 of the 12 items and on the overall mean of Items 1 - 12. Moreover, means of the experimental group were closer to the "ideal" on all 12 items.

Hovenier studied the effects of feedback from teachers to social studies department heads. Differences between the post-actual means of experimental (N = 70) and control groups (pretest-posttest control, N = 79; posttest-only control, N = 59) were in the hypothesized direction, closer to the ideal, on eight of the ten items. Differences were statistically significant at the .05 level on two of the ten items. Hovenier suggested that the limited statistical significance of results may have resulted from the relatively small number of subjects. He also suggested that another aspect of the role of social studies department heads which may have inhibited change is that the department head is also a teacher and may be unwilling to increase his effectiveness in the supervisory domain. In addition, Hovenier hypothesized that social studies department heads who planned to go into administration would change more on administratively oriented items, than would department heads who intended to remain teachers. The difference on posttest means of these two groups was in the hypothesized direction and statistically significant at the .05 level on one of the two items considered administratively oriented.

In a somewhat different framework, Bryan (1963) carried out a feedback experiment over a period of two years. Students in different classes being taught by the same teacher rated their teacher's behavior. In both 1960 and 1961, participating teachers (N = 119) received graphed summaries of student ratings and summarized student comments. Bryan found that 57 percent of the teachers in the experimental group (N = 60) changed their behavior in the hypothesized direction on one or more of the ten items to a degree that was statistically significant at the .01 level. Only 24 percent of the control group (N = 59) made similar changes, as indicated by mean student ratings. Only 12 percent of the experimental group made losses that were statistically significant at the .01 level on one or more items as compared with 27 percent of the control group who made similar losses.

The studies reviewed above (Gage, et al.; Daw; Hovenier; and Bryan) have used as the source of feedback the client group. This aspect of the effect of feedback on a group leader's behavior was tested in studies reported by Hayes, Keim, and Neiman (1967) and by Oliver (1967).

Hayes, Keim, and Neiman investigated the effectiveness of supplying sixth grade teachers with feedback from various groups. Eighty teachers were assigned randomly to four treatment groups. Teachers in all four groups received information about pretest pupil achievement scores. In addition, teachers in Group I received feedback information of pupil reaction to their teaching behavior and to the subject being taught. Teachers in Group II received feedback of observer ratings of teacher-pupil interaction. Feedback to teachers in Group III included both pupil reactions and observer ratings. Teachers in Group IV received only pretest pupil achievement scores. Half of the teachers in each treatment group were selected to receive standardized feedback in a face-to-face conference. The other half received standardized feedback mailed to them.

Teachers in all groups were rated by their pupils a minimum of three times and were observed in the classroom a minimum of three times during the course of the experiment. The study extended from September through April.

Posttreatment class means of student scores on the Stanford Achievement Test Battery, on student attitudes toward school subject, and on student ratings of their teachers, and posttreatment individual student scores on the same tests were analyzed by analysis of variance or by analysis of covariance as appropriate, or by the Cornell scalogram technique. No significant differences in class means were found between treatments in pupil achievement or student attitude toward school subjects, or in pupil ratings of their teachers.

Individual student scores on these same tests were analyzed using analysis of variance or analysis of covariance. Differences in means of individual scores favored written feedback in treatment groups I, II, and III, and were significant at the .01 level on nine of the 16 comparisons made. Differences favored face-to-face feedback over written feedback in Treatment IV, feedback of pupil achievement scores only, but were not statistically significant.

Individual student ratings of their teachers in the spring were examined by analysis of covariance, using student ratings of their teachers in the fall as the covariate. Differences in treatments favored Treatment III, feedback of pupil ratings plus observer ratings of pupil-teacher interaction, and Treatment I, feedback of pupil ratings only, and were statistically significant at the .05 level over Treatment IV.

When individual student attitudes toward school subjects were investigated, no significant differences were found.

A study of the effectiveness of feedback with vocational teachers was reported by Oliver. Beginning and experienced teachers in the fields of trade, industrial, technical, vocational, agricultural, and distributive education were given feedback of ratings from pupils, from supervisors, or from pupils and supervisors. Effects of feedback were measured by change in scores on a student opinion questionnaire of ten items.

When the control group was compared with the experimental groups, no significant differences were found between the Control Group and the Supervisor-Only Feedback Group. Differences significant at the .05 level were found on four items between the Control Group and the Student-Only Feedback Group, and on three items between the Students-Supervisor Feedback Group and the Control Group.

No significant differences were found between the Students-Only Feedback Group and the Students-Supervisor Feedback Group.

The Supervisor-Only Feedback Group was compared with the other two treatment groups. Differences significant at the .05 level were found on the same five items between the Students-Only Feedback Group and the Supervisor-Only Feedback Group, and between the Students-Supervisor Feedback Group and the Supervisor-Only Feedback Group. These five items were labeled Explanations, Fairness, Discipline, Amount of Learning, and Interesting as rated by the students.

Findings of these two studies (by Hayes, Keim and Neiman, and by Oliver) support the proposition that feedback from the client group is effective in producing behavior change.

Much social psychological research suggests that systematic feedback can be effective in producing behavior change. There is evidence to support the proposition that the client group may be the most effective source of feedback where change in behavior is measured in terms of ratings by the client group. There is also some evidence to suggest that standardized feedback may be more effective in producing behavior change when presented in written form rather than in the form of face-to-face contact.

The present study proposed that providing the principal with summarized information about expectations held for his role by his teachers (Ideal Feedback) and about perceptions of his actual behavior held by his teachers (Actual Feedback) would influence him to change his behavior in the direction of the teachers' "ideal." The study proposed, secondly, that providing him with information about both expectations and perceptions of actual behavior would influence him to a greater degree of change than would providing him with information about expectations of ideal behavior only, or about perceptions of actual behavior only.

Social Psychological Theory and Research on Commitment

The third major question dealt with in this study is, Does making a commitment to change behavior affect the amount of change observable? In the studies cited below "commitment" to change a behavior is defined as the act of stating an intention or a desire to change that behavior.

Studies by Lewin (1952) explored the effectiveness of group discussion and public decision in producing behavior change. In two studies women participated in group discussions about a desirable behavior and made a public commitment in the group setting to adopt that behavior. Actual adoption of the desired behavior was significantly greater among these women than among women who had received the same information in lecture form without discussion or commitment.

Bennett (1955) raised questions about the conclusions Lewin had drawn from his results. She attempted to examine the effects of discussion versus lecture presentation, of decision versus no decision, and of degree of consensus within the group. She concluded that Lewin's results could be accounted for by the act of making the decision, that is, developing the group norm, plus the degree of perceived consensus in the group, as rationally as by the act of making the public commitment to change behavior.

French, Sherwood, and Bradford (1966) studied the effects of varying amounts of feedback, including no feedback, and of stated commitment to change on changes in self-identity. All subjects were asked to choose four items out of 19 items of behavior on which they would most like to change. This choice was considered to be a commitment on the part of the subject to change on the four chosen items. It was considered that he had not made a commitment to change on the remaining 15 items.

Each individual was assigned to four different treatment groups. By a random process the four items he had chosen were assigned to one of four feedback treatments. Thus he received feedback treatment A on one of the four "committed" items, treatment B on a second "committed" item, treatment C on the third chosen item, and treatment D on the fourth.

On the item assigned to Treatment A, he was rated by other group members and the rating was discussed with him at a scheduled meeting. On the item assigned to Treatment B, he was rated but no scheduled discussion of the behavior was held with him. On the Treatment C item, no rating was made, but scheduled discussion was held with him. On the Treatment D item and the 15 additional unchosen items, no rating was made and no scheduled discussion was held.

Subjects rated themselves before and after the treatments on the 19 behavior items. Change in self-ratings, "self-identity," was the dependent variable. The changes in self-identity on the four chosen items, including the Treatment D item on which no rating was made and no scheduled discussion was held, were significantly greater on each of the four chosen items than on the 15 unchosen items ($p < .01$). The question may be asked whether changes in self-identity which may be initiated by stating a desire to change will be reflected in observable behavior change. Methods of investigating this question have been incorporated in the present study.

The results obtained in these studies of commitment may be examined in terms of the analysis of group dynamics offered by Brown (1965, pp. 656-82). He noted that the general finding of shift in group decisions on risk-taking problems includes a convergence of opinion which suggests the "emergence of a group norm and the operation of conformity forces." He stated that conditions of imbalance develop in group members who are not in agreement with the group's consensus, and that the convergence of opinion or development of a group norm represents the resolution of imbalance.

An actual event reported by Festinger, Riecken, and Schachter in When Prophecy Fails (1956) describes the strong effect which commitment to a group norm within a group setting may have on behavior. Some members of a group called The Seekers gathered in their leader's home to await a prophesied flood on December 21. Other members of the group had dispersed to homes away from Collegeville. Those members who met together to await their own death became more strongly committed to the group when the flood failed to occur. The explanation of the intervention of special divine grace in their favor was enthusiastically accepted. Those members who did not remain with the group relinquished their faith in the prophet or held diminished confidence in him. Brown suggests that a reasonable explanation of the change which occurred in the faith of the members is that the acceptance of a group norm in the group setting provided social reinforcement which strengthened a commitment (Brown, 1965, pp. 590-93).

Feedback to principals of information about how teachers view their behavior may be interpreted as the clarification for the principals of a group norm. It is reasonable to suggest that if a principal commits himself in writing to accept the group norm, he will make an effort to change his behavior in the direction of that norm.

The present study defines "commitment to change behavior" as expressing to the researcher an intention to "work on" an area of principal behavior, assumes that such a "commitment" entails acceptance of a group norm, and deals with the question of whether such a commitment will effect behavior change in the desired direction.

Hypotheses

The present study examines three questions and tests five hypotheses:

1. Does giving information (feedback) to principals about how teachers view their behavior produce observable behavior change?

Hypothesis I: Principals who receive such feedback change their behavior more toward the teachers' "ideal" than do principals who do not receive such feedback.

2. Do different feedback treatments differ in effectiveness in changing the principal's behavior?

Krech, Crutchfield, and Ballachey (1962, p. 83) suggest that, "For most persons it becomes a major goal to achieve an 'actual' self which is as similar as possible to the ideal self." The picture one has of the ideal self is built up through learning the values in one's culture. It may be that simply informing the principal of the behaviors teachers consider "ideal" in the principal will create sufficient motivation for him to move in that direction.

It is also possible that the principal's own view of the ideal behavior of a principal may already be close to the teachers' ideal. It might then be suggested that providing him with feedback on the ratings by teachers of his actual behavior will reveal discrepancies between his "ideal" image and his "actual" image which will motivate him to change.

The question of the effectiveness of providing feedback of pre-ideal ratings only or of pre-actual ratings only has not been investigated in previous studies.

Hypothesis II: Principals who receive information about the teachers' ratings of the behavior both of their "ideal" principal and of the "actual" principal change more toward the teachers' "ideal" than do principals who do not receive both "ideal" and "actual" feedback.

Hypothesis III: Principals who receive feedback on pre-ideal ratings only change more in the direction of the teachers' "ideal" than do principals who receive feedback on pre-actual ratings only, or who receive no feedback.

3. Does a commitment to make an effort to change behavior produce greater observed change?

Two areas of principal-teacher interaction were identified for the principals in the study, namely, (a) Task Assistance to the Teacher and (b) Personal Support of the Teacher. These areas were identified and defined in the framework of the Principal's Behavior Questionnaire. Items 1 - 6 were presented as items related to Task Assistance to the Teacher. These items describe specific behaviors that the principal exhibits which assist the teacher in the classroom teaching situation. The behaviors are described in these items in terms of what the principal does. Items 7 - 12 were presented as items related to Personal Support of the Teacher. These items describe general patterns of behavior that the principal exhibits which tend to enhance the teachers' confidence and self-worth. These patterns are described in terms of the feelings they arouse in the teachers. The procedures used in selecting the 12 items and ascribing them to one of the two categories are described in Chapter 2.

Two-thirds of the principals, randomly selected from those principals who were contacted and asked to participate in the study, were asked to identify which one of the two areas of principal-teacher interaction (Task Assistance to the Teacher or Personal Support of the Teacher) they would like to "work on" during the course of the study. The remaining one-third was not asked to make such a commitment.

Hypothesis IV: Principals who make a commitment to make an effort to change their behavior change more toward the teachers' "ideal" than do principals who do not make such a commitment.

Hypothesis V: Principals who choose a particular area of principal-teacher interaction to work on change more toward the teachers' "ideal" on this area than do principals who do not choose this same area.

CHAPTER II

Experimental Procedures

This chapter is concerned with the plan of the study. It discusses the experimental design, the sample population, the instruments, and the planned analysis.

This study extended the questions examined in three previous feedback studies. In the study reported by Gage, Runkel and Chatterjee (1960), an experimental and a control group were given a pretest and a posttest. Teachers in the experimental group received feedback on ratings of the "ideal" teacher and the "actual" teacher as made by their students.

The effects of feedback of ratings of the "ideal" principal and the "actual" principal were tested in the study reported by Daw (1964). Daw examined the effects of four additional factors, namely:

1. The effects of the pretest. His design included a pretest-posttest control group and a posttest-only control group.

2. The effects of varying intervals between feedback and posttest, i.e., six or twelve weeks.

3. The effects of giving feedback in the form of median ratings only as against giving feedback in the form of median ratings plus frequency distributions.

4. The effects of positive or negative wording of the items on the questionnaire used by the teachers.

Hovenier (1966) also included a posttest-only control group in his experiment on feedback from teachers to social studies department heads.

The Design

The present study included four feedback treatment groups. Group I received feedback information on both ideal and actual ratings by their teachers, Group II received feedback information on ideal ratings only, Group III received feedback information on their teachers' actual ratings only, and Group IV received no feedback until after the posttest. Principals were assigned to these feedback treatment groups by a random process after they agreed to participate in the study. Random assignment to these four groups was made approximately equal within each of the three commitment groups, since commitment was a partially self-selective process and had resulted in an unequal distribution.

Permission was received from 199 superintendents in California public school districts to contact specified principals in their district to request participation in the project. (The process of selecting a stratified random sample of public elementary school principals throughout California is described below.) The 314 principals who were contacted in these 199 districts were randomly assigned to a Commitment Group (210 principals -- 67%) or to a Non-Commitment Group (104 principals -- 33%). Of the total group of 226 principals who agreed to participate in the study, 145 (64%) were among those who had been assigned to the Commitment Group, and 81 (36%) were among those who had been assigned to the Non-Commitment Group. The principals in the Commitment Group were asked on the Principal's Information Questionnaire (shown in Appendix A-1) to select and identify one of the two areas of principal-teacher interaction, (a) Task Assistance to the Teacher (Items

1 - 6 on the questionnaire) or (b) Personal Support of the Teacher (Items 7 - 12), as the area "which you feel you would most like to work on as a part of your continuing effort to develop and maintain an effective teaching situation in your school." (Appendix A contains samples of all forms used in the study requesting information from principals and teachers.)

It had been hoped that this self-selection process would result in a somewhat equal distribution between the two areas, the Task Assistance area and the Personal Support area. This was not the case, since 109 (48%) of the principals who agreed to participate selected the area of Task Assistance to the Teacher, while only 36 (16%) of the principals selected the area of Personal Support of the Teacher.

Within each of the three commitment groups (Task Commitment, Personal Commitment, and No Commitment), principals were randomly assigned to the four feedback treatments. Group I (N = 57) received feedback of both Ideal and Actual pretest ratings by their teachers, Group II (N = 56) received feedback of Ideal pretest ratings only, Group III (N = 56) received Actual pretest ratings only, and Group IV (N = 57), the control group, received no feedback until after the posttest. Table I shows the distribution of the total sample of 226 principals within cells.

After the specified feedback had been given, each principal in the Task Area Commitment Group and in the Personal Area Commitment Group was asked to examine his feedback carefully and decide whether he would like to indicate a change in his choice of area to work on. Seventeen principals, four from Task Area and 13 from Personal Area, indicated a change in the area of commitment.

TABLE I

Distribution of Principals who Agreed to Participate in the Research Project by Feedback and Commitment Groups

Commitment Groups	Feedback Treatment Groups I Ideal+Actual	 II Ideal	 III Actual	 IV None	 N	 Total %
Task Area	27	28	27	27	109	48.2%
Personal Area	10	8	9	9	36	15.9
None	20	20	20	21	81	35.9
Total N	57	56	56	57	226	
Total %	25.2%	24.3%	24.3%	25.2%		100.0%

A total of 206 principals with their staffs completed all aspects of the study. Table II shows the distribution within cells of principals who completed all phases of the project.

The Sample

The study was conducted in public elementary schools of California. A stratified random sample of schools to be contacted (approximately 10% of all elementary schools listed with an enrollment of 200 or more pupils) was selected from those listed in the 1967 Directory of Administrative and Supervisory Personnel in California Public Schools. The following factors formed the basis for selection of the stratified sample of schools to be contacted and asked to participate in the research project: (Appendix B-1 shows the distribution of participating schools, by stratification categories. B-2 shows the distribution of school districts represented, by stratification categories.)

1. Size of the school, based on enrollment figures given in the 1967 California Directory.
    a. Enrollment of 200 to 500 students
    b. Enrollment of 500 or more students
2. Size of the district as indicated by the number of elementary schools in the district.
    a. 1 elementary school only
    b. 2 - 10 elementary schools
    c. 11 - 40 elementary schools
    d. 41 or more elementary schools

TABLE II

Distribution of Principals who Completed All Phases of the Study By Feedback and Commitment Groups

Commitment Groups		Feedback Treatment Groups				
	I Ideal+Actual	II Ideal	III Actual	IV None	N	Total %
Task Area	27	28	27	27	109	52.9%
Personal Area	8	5	6	6	25	12.1
None	20	20	17	15	72	35.0
Total N	55	53	50	48	206	
Total %	26.6%	25.8%	24.3%	23.3%		100.0%

3. Unification status
    a. Unified
    b. Non-unified
4. Density of elementary schools in the county where the school is located, based on the average number of elementary schools per district in that county.
    a. Counties in which the average number of elementary schools per district is more than seven.
    b. Counties in which the average number of elementary schools per district is three to seven.
    c. Counties in which the average number of elementary schools per district is one or two.

A total of 463 schools, representing 243 California public school districts, was selected within these categories (approximately 10% of schools within each category). A letter (Appendix C-1) was written to the superintendent in each district containing one or more of the randomly selected schools describing the proposed project and asking permission to contact the specified schools within that district. Appendix C contains copies of all letters used in the project. Of those contacted, 199 superintendents (81%) responded favorably. Principals of 314 schools in these districts were asked by letter (Appendix C-3) to participate with their staff in the research project. Principals of 226 schools (72% of the 314 invited) agreed to participate in the study. Principals and their staffs in 206 schools (66% of the 314 invited) completed all phases of the study.

The Instruments

The rating scale items used were derived from the twelve items developed by Daw and used in his study, and from additional items developed by means of a search of the literature on principal-teacher relations and from discussions with principals, teachers and graduate students of education. The possible new items thus identified were judged by a group of graduate students in the School of Education at Stanford University on the basis of two criteria:

1. Does the item specify an observable principal behavior?

2. Could the behavior be changed and the change be observed by teachers within an eight-week period?

Of the 72 items submitted to these judges, 54 were retained after being revised according to comments and suggestions about form and meaning. These items were arbitrarily arranged in four blocks of items by item content. This pool of 54 items was then submitted to a group of nine principals and 76 elementary school teachers in a Bay Area school district, along with the following instructions:

1. Rate each item on a four-point scale from like to unlike the behavior of the best principal you can imagine.

2. From each block of statements, select the five statements which describe behaviors most important in helping to create an effective and harmonious teaching situation. In addition, the nine principals were asked to identify, from each block of statements, the five statements which described behaviors about which they would most like to get information from their teachers.

Of the 54 items, 20 were retained following this pretest. Twelve graduate students at Stanford University were then asked to place each item in one of two categories of principal-teacher interaction, (a) Task Assistance to the Teacher, or (b) Personal Support of the Teacher. Twelve items (on which there was 83% or higher agreement among the 12 judges) were included in the revised form of the instruments.

A second pretest was conducted in teacher education classes at San Jose State College and San Francisco State College. Approximately 150 students, some experienced teachers and some student teachers, in the teacher education programs of the two state colleges were asked to respond to the 12 items, using a ten-point rating scale from (1) "not at all like" the behavior of "my own" (the Actual) or "my ideal" principal to (10) "extremely like" the behavior of "my own" or "my ideal" principal. Revisions were made in the instructions and in items according to suggestions and comments of respondents. The 12 items submitted to this pretest, revised as necessary, comprise the final instrument used in the study. See Appendix A for copies of the questionnaires and of the rating sheets used in the project.

Data Analysis

It was proposed in this study that giving to a principal pretest information about how his teachers view his behavior would result in behavior changes which would be reflected in posttest ratings. It was proposed, secondly, that behavior change would be affected differentially by different feedback treatments. It was also proposed that the effectiveness of feedback would be increased if the principal stated a commitment to "work on" a particular area of principal-teacher interaction.

The statistical procedures used were the same as those used in the studies by Gage, Runkel and Chatterjee, by Daw, and by Hovenier. That is, analysis of covariance was used to test hypotheses related to the propositions stated above. Pretest ratings of the actual behavior of the principal were used as the covariate; posttest ratings of actual behavior served as the dependent variable. Feedback and commitment were considered the independent variables. Analyses of covariance were computed for nine of the 12 items separately (Items 9, 10, and 12 did not meet the assumption of parallel slopes required for analysis of covariance), for the mean scores on the two sub-groups of items, Items 1 - 6 and Items 7 - 12, and for the overall mean score on Items 1 - 12.

In addition, for reasons described below, chi-square analyses were made to determine the significance of differences in the frequency of instances of positive change (toward the ideal) as against negative change or no change. Details on the results of the analyses of covariance and the chi-square analyses are reported in Chapter 3.

CHAPTER III

Results

This chapter deals with the results of the experiment. It will report summarized data of the project, describe statistical procedures used to test the hypotheses, and discuss the results of these tests.

The three major questions which the experiment dealt with were (1) Can an observable change in the behavior of an elementary school principal be effected by providing him with "feedback," or information about how his teachers view his behavior? (2) Is behavior change affected differentially by different kinds of feedback? and (3) Does the principal's stating a commitment to change his behavior increase the effectiveness of feedback in producing such change? Change was measured by means of adjusted post-feedback ratings of the principals by their teachers. For each of the 12 items a ten-point rating scale was used, ranging from (1) "not at all like" the behavior of "my own" (the Actual) or "my ideal" principal to (10) "extremely like" the behavior of "my own" or "my ideal" principal. Teachers rated their "ideal" principal and their "actual" principal on each of the 12 items concerning principal behavior.

The 12 items describing the principal's behavior, grouped into two categories, are as follows:

TASK ASSISTANCE TO THE TEACHER:

1. Encourages teachers to develop their own best teaching methods.

2. Gives worthwhile suggestions for improving classroom instruction.

3. Consults teachers in the handling of behavior problems which affect their classroom.

4. Brings to the attention of teachers information on teaching aids and methods of value to them in their work.

5. Enforces rules of student behavior to the best interests of those concerned.

6. Aids teachers in developing abilities of students at all levels.

PERSONAL SUPPORT OF THE TEACHER:

7. Displays interest in teachers' ideas.

8. Enlists participation by teachers in making decisions.

9. Gives teachers a feeling of support in front of pupils or other teachers.

10. Treats teachers with respect and courtesy.

11. Gives teachers the feeling that their work is important.

12. Respects teachers' authority regarding pupils' grades.

Mean ratings were determined for the teachers of each principal on each of the 12 items, on a subtotal of Items 1 - 6, on a subtotal of Items 7 - 12, and on the total of Items 1 - 12. Table III shows the mean, standard deviation, and the range of principals' pretest and posttest "actual" means on each item.

Data used for the analyses of covariance were principals' mean scores determined from their teachers' ratings of the behavior of their "actual" principal. Posttest scores were considered the dependent variable with pretest scores serving as the covariate. Feedback and commitment were considered the independent variables.

The process of assigning subjects to treatment groups was described in Chapter 2. The self-selection of commitment to Task Assistance Area or to Personal Support Area resulted in unequal numbers of subjects in the commitment groups, as was shown in Table II, page 24. Allowance was made for unequal cell sizes in the computation of F ratios.

The study was intended to determine whether different feedback treatments would affect principals' behavior to different degrees. It was hypothesized that principals who receive feedback information about their teachers' ratings of both their "ideal" principal and their "actual" principal change more in the direction of the ideal than do principals who receive Ideal-Only feedback, Actual-Only feedback, or No feedback. It was further hypothesized that principals who receive feedback information about their teachers' ratings of their "ideal" principal only change more in the direction of the ideal than do principals who receive Actual-Only feedback or No feedback.

The study also proposed that commitment on the part of the principal to change his behavior would affect the change. It was hypothesized that principals who state a commitment to change their behavior change more in the direction of the ideal than do principals who do not state a commitment to change. It was also hypothesized that principals who state a commitment to change a particular area of their behavior change more in that area than do

TABLE III

Mean, Standard Deviation and Range of Principals' Pretest and Posttest Scores (Mean Ratings by Teachers of Their "Actual" Principal)

N = 206 Principals

	Mean		SD		Range	
	Pre	Post	Pre	Post	Pre	Post
Task Items						
1	8.165	8.215	1.001	1.002	2.727-10.000	3.375-10.000
2	6.646	6.870	1.226	1.265	2.727- 9.389	2.875-10.000
3	7.150	7.290	1.296	1.329	3.182-10.000	2.000-10.000
4	7.391	7.407	1.167	1.161	3.455- 9.733	2.875-10.000
5	7.317	7.397	1.508	1.511	2.000- 9.923	2.875-10.000
6	6.844	7.023	1.159	1.306	3.091-10.000	2.500-10.000
Personal Items						
7	7.731	7.752	1.171	1.210	2.545-10.000	2.125-10.000
8	7.421	7.537	1.212	1.327	2.727-10.000	2.125-10.000
9	8.314	8.347	1.193	1.221	2.636-10.000	1.625-10.000
10	8.764	8.677	0.984	1.070	3.273-10.000	2.250-10.000
11	8.382	8.363	1.038	1.120	2.545-10.000	2.000-10.000
12	8.649	8.675	0.953	1.024	3.636-10.000	2.500-10.000
Items						
1- 6	7.255	7.367	1.075	1.142	3.181- 9.738	2.750-10.000
7-12	8.211	8.227	0.994	1.079	2.893-10.000	2.103-10.000
1-12	7.732	7.796	0.994	1.071	3.038- 9.852	2.425-10.000

principals who do not state a commitment to change in that area.

TESTS OF THE HYPOTHESES -- ANALYSES OF COVARIANCE

Analyses of covariance were performed on nine of the 12 items, on the means over the two sub-groups of items (1 - 6 and 7 - 12), and on the mean over all items (1 - 12). These analyses tested each item for feedback effect, for commitment effect, and for the effects of interaction of feedback and commitment. Analyses of covariance were not performed on Items 9, 10, and 12, since these items did not meet the assumption of parallel slopes necessary for analysis of covariance. Table IV gives the F ratios computed by analysis of covariance for the 36 tests. (See Appendix B-3 for more detailed results of these analyses.)

For the 36 comparisons made, statistically significant differences were found in the adjusted post-actual mean scores for the effect of feedback on Item 3 only. (See p. 30 for the wording of this item and all items.)

The differences found on this item supported Hypothesis I, the effect of feedback. The adjusted posttest mean scores of teachers' "actual" ratings of principals are closer to the ideal on this item for the three feedback groups than for the No Feedback Group. Table V shows observed pre-actual means, observed post-actual means, and adjusted post-actual means for each feedback group on each item. Table VI shows the observed pre-actual means, observed post-actual means, and adjusted post-actual means for each commitment group on each item.

The only other difference which approached statistical significance was that reflecting the effect of commitment on Item 4. (See p. 30 for the wording.) Differences in adjusted post-actual mean scores on this

TABLE IV

F Ratios Found by Analyses of Covariance Performed on Each Item for the Effects of Feedback, Commitment and Interaction[a]

	Feedback Effect	Commitment Effect	Interaction Effect
Task Items	df 3 193	df 2 193	df 6 193
1	F: 1.171	F: 1.783	F: 0.846
2	1.753	0.449	0.944
3	3.424*	0.236	0.390
4	0.948	2.096	0.765
5	0.861	0.068	0.130
6	1.070	1.153	1.415
Personal Items			
7	1.576	1.049	1.271
8	1.708	0.137	1.310
9	Did not meet assumption of parallel slopes for analysis of covariance[b] (F: 2.0472*)		
10	Did not meet assumption of parallel slopes for analysis of covariance[b] (F: 3.1227*)		
11	0.858	0.110	1.342
12	Did not meet assumption of parallel slopes for analysis of covariance[b] (F: 2.1205*)		
Items 1 - 6	1.765	0.750	0.565
7 - 12	0.957	0.189	0.685
1 - 12	1.414	0.301	0.667

* $p < .05$

[a] See Table V, p. 35 for observed pretest and posttest means and adjusted posttest means of feedback groups. See Table VI, p. 36 for observed pretest and posttest means and adjusted posttest means of commitment groups.

[b] df = 11 and 182 for the test of parallel slopes.

TABLE V

Observed Pretest, Observed Posttest, and Adjusted Posttest Means of Teachers' Ratings of Actual Principal's Behavior Feedback Treatment Groups

	Ideal + Actual (N = 55)			Ideal-Only (N = 53)			Actual-Only (N = 50)			No Feedback (N = 48)			F
	Observed Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean	Observed Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean	Observed Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean	Observed Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean	df=3-193
Task Items													
1	8.06	8.15	8.22	8.27	8.42	8.34	8.20	8.22	8.19	8.13	8.07	8.11	1.171
2	6.62	6.85	6.87	6.64	7.11	7.12	6.62	6.78	6.80	6.71	6.73	6.68	1.753
3	7.02	7.35	7.45*	7.35	7.59	7.43	7.07	7.24	7.30	7.16	6.95	6.95*	3.424*
4	7.34	7.39	7.43	7.49	7.62	7.54	7.23	7.36	7.46	7.47	7.27	7.21	0.948
5	7.30	7.47	7.48	7.47	7.56	7.43	7.18	7.31	7.42	7.31	7.21	7.22	0.861
6	6.79	7.00	7.05	6.99	7.31	7.18	6.75	6.92	7.00	6.84	6.85	6.85	1.070
Personal Items													
7	7.65	7.69	7.76	7.79	7.96	7.91	7.78	7.79	7.75	7.71	7.55	7.59	1.576
8	7.42	7.58	7.58	7.53	7.81	7.71	7.38	7.48	7.52	7.36	7.25	7.31	1.708
9	8.18	8.31	8.31[a]	8.53	8.60	8.60[a]	8.31	8.25	8.25[a]	8.24	8.22	8.22[a]	
10	8.72	8.61	8.61[a]	8.86	8.87	8.87[a]	8.77	8.63	8.63[a]	8.71	8.58	8.58[a]	
11	8.37	8.33	8.34	8.45	8.54	8.49	8.30	8.30	8.36	8.41	8.27	8.25	0.858
12	8.60	8.55	8.55[a]	8.82	8.90	8.90[a]	8.61	8.65	8.65[a]	8.56	8.61	8.61[a]	
Items													
1 - 6	7.19	7.37	7.43	7.38	7.60	7.49	7.18	7.30	7.37	7.27	7.18	7.16	1.765
7 - 12	8.16	8.18	8.23	8.33	8.45	8.34	8.19	8.18	8.21	8.16	8.08	8.13	0.957
1 - 12	7.67	7.77	7.83	7.85	8.02	7.91	7.69	7.74	7.78	7.72	7.63	7.64	1.414

a. Observed mean. This item did not meet the assumption of parallel slopes for analysis of covariance.

* $p < .05$ The greatest difference between adjusted post-actual means lies between Ideal + Actual Feedback and No Feedback.

TABLE VI

Observed Pretest, Observed Posttest, and Adjusted Posttest Means of Teachers' Ratings of Actual Principal's Behavior Commitment Groups

	Task Commitment (N = 109)			Personal Commitment (N = 25)			No Commitment (N = 72)			F
	Observed Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean	Observed Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean	Observed Pretest Mean	Observed Posttest Mean	Adjusted Posttest Mean	df = 2 193
Task Items										
1	8.23	8.27	8.21	8.13	7.97	7.99	8.09	8.21	8.25	1.783
2	6.74	6.91	6.76	6.27	6.53	6.75	6.64	6.93	6.86	0.449
3	7.21	7.33	7.26	7.12	7.18	7.18	7.07	7.27	7.32	0.236
4	7.52	7.43	7.28	7.20	7.19	7.29	7.27	7.44	7.49	2.096
5	7.39	7.47	7.37	7.21	7.30	7.36	7.25	7.32	7.34	0.068
6	6.92	7.07	6.95	6.68	6.72	6.81	6.78	7.06	7.08	1.153
Personal Items										
7	7.80	7.79	7.69	7.53	7.44	7.56	7.70	7.80	7.78	1.049
8	7.51	7.64	7.46	6.93	7.06	7.36	7.46	7.55	7.41	0.137
9	8.35	8.41	8.41[a]	8.04	8.15	8.15[a]	8.36	8.33	8.33[a]	
10	8.81	8.75	8.75[a]	8.40	8.39	8.39[a]	8.83	8.66	8.66[a]	
11	8.47	8.46	8.32	8.09	8.06	8.24	8.35	8.32	8.28	0.110
12	8.67	8.74	8.74[a]	8.63	8.45	8.45[a]	8.63	8.66	8.66[a]	
Items										
1 - 6	7.33	7.41	7.30	7.10	7.15	7.25	7.19	7.34	7.36	0.750
7 - 12	8.27	8.30	8.18	7.94	7.93	8.12	8.22	8.22	8.15	0.189
1 - 12	7.80	7.86	7.74	7.52	7.54	7.68	7.70	7.80	7.77	0.301

a. Observed mean. This item did not meet the assumption of parallel slopes for analysis of covariance.

item do not support the commitment hypotheses. The adjusted post-actual mean of the No Commitment Group is closer to the ideal than the adjusted post-actual mean of the Task Commitment Group or of the Personal Commitment Group.

These findings, results of the tests of analysis of covariance, offered no support for the hypotheses tested. An examination of differences in adjusted post-actual means, as reported in Tables V and VI, showed that differences were small in every instance. These differences suggested, however, that a pattern of behavior change existed and that the pattern related to the hypotheses.

It can be noted from Table V that the adjusted post-actual means of the three feedback groups were consistently higher, i.e., more favorable, than were the adjusted post-actual means of the No Feedback Group. This is true for all nine tested items, and for the means of Items 1 - 6, 7 - 12, and 1 - 12 in each of the three feedback groups (Ideal + Actual, Ideal-Only, and Actual-Only). The direction of these differences suggests that the feedback given did have a positive effect on behavior change.

Table VI reports the pre-actual, post-actual and adjusted post-actual means of the three commitment groups. An examination of the adjusted post-actual means for these three groups also suggests that a pattern of behavior change exists. Adjusted post-actual means of the No Commitment Group were higher, i.e., more favorable, than the adjusted post-actual means of the Task Commitment Group on six of the nine tested items, and on the means over Items 1 - 6 and 1 - 12. The adjusted post-actual means of the No Commitment Group were higher than the adjusted post-actual means of the Personal

Commitment Group on eight of the nine tested items, and on the means over Items 1 - 6, 7 - 12, and 1 - 12. These results stated in terms of the hypotheses on commitment appear to be as follows:

1. Adjusted post-actual means of principals who did not make a commitment to change their behavior were consistently higher than the adjusted post-actual means of principals who made a commitment to work on the area of Personal Support to the Teacher.

2. Adjusted post-actual means of principals who did not make a commitment to change their behavior were more favorable on Task Assistance Items (Items 1 - 6) than were adjusted post-actual means of principals who made such a commitment.

3. Adjusted post-actual means of principals who made a commitment to work on the area of Task Assistance (Items 1 - 6) were more favorable, i.e., higher, on Personal Support Items (Items 7 - 12), but not on Task Assistance items, than were adjusted post-actual means of principals who made a commitment to work on the area of Personal Support or who made no commitment. These results did not support the commitment hypotheses.

Table VII summarizes these data. It shows the ranks of the adjusted post-actual means of the feedback treatment groups and of the commitment groups. This table shows that the Ideal + Actual Feedback Treatment Group ranked 1, most favorable, on two items, 2 on five items, and 3 on two of the nine tested items; the Ideal-Only Feedback Treatment Group ranked 1 on seven items and 2 on two of the nine tested items; the Actual-Only Feedback Treatment Group ranked 2 on two items and 3 on seven of the nine tested items; and the No Feedback Treatment Group ranked 4 on all nine of the tested items.

TABLE VII

Rank of Adjusted Post-Actual Means Relative to Assumed Ideal (10.0)

	Feedback Groups				Commitment Groups		
	Ideal + Actual	Ideal	Actual	No Feedback	Task	Personal	No Commitment
Task Items							
1	2	1	3	4	2	3	1
2	2	1	3	4	2	3	1
3	1	2	3	4	2	3	1
4	3	1	2	4	3	2	1
5	1	2	3	4	1	2	3
6	2	1	3	4	2	3	1
Personal Items							
7	2	1	3	4	2	3	1
8	2	1	3	4	1	3	2
9[a]	2	1	3	4	1	3	2
10[a]	3	1	2	4	1	3	2
11	3	1	2	4	1	3	2
12[a]	4	1	2	3	1	3	2
Items							
1 - 6	2	1	3	4	2	3	1
7 - 12	2	1	3	4	1	3	2
1 - 12	2	1	3	4	2	3	1

[a] Rank based on observed mean. This item did not meet the assumption of parallel slopes for analysis of covariance.

In addition, Table VII may be examined for ranks of the Commitment Groups in the two commitment areas (Task Area, Items 1 - 6, and Personal Area, Items 7 - 12). An examination of the Task Area shows that the No Commitment Group ranked 1 on five and 3 on one Task item; the Task Commitment Group ranked 1 on one, 2 on four, and 3 on one Task item; and the Personal Commitment Group ranked 2 on two, and 3 on four Task items. A similar examination of the Personal Area shows that the No Commitment Group ranked 1 on one, and 2 on two of the three tested Personal items; the Task Commitment Group ranked 1 on two, and 2 on one of the three tested Personal items; and the Personal Commitment Group ranked 3 on all three of the tested Personal items.

These suggestions of some consistency in patterns of change were intriguing and encouraged a more detailed examination of the frequency of changes toward the ideal in the mean scores of principals within the various groups. It was decided to examine principals' mean scores on the basis of change toward the ideal and perform chi-square analyses.

FURTHER TESTS OF THE HYPOTHESES -- CHI-SQUARE

It had not been a part of the originally planned procedure to perform chi-square analyses. Such analyses would not entail any departure from the original hypotheses, however, and seemed consistent with the purposes of the experiment. For these analyses the observed pre-actual and post-actual mean scores of each principal were compared. Changes were recorded in two categories, (1) change toward the ideal (considered positive), and (2) change away from the ideal or no change (considered negative). A change of less than .10 was considered "no change." Table VIII reports the number of principals exhibiting positive and negative changes on each item for each feedback treatment group. Table IX reports the number of principals exhibiting positive and negative changes on each item for each commitment group.

Perhaps a reminder is in order here. Feedback treatment groups and commitment groups are not separate or distinct groups of subjects. Analyses performed and data reported relating to feedback treatment groups and commitment groups are simply two different analyses or two different reports of the same data. The three commitment groups consist of the same 206 principals as do the four feedback treatment groups.

Chi-square analyses were performed to test the feedback and the commitment hypotheses. Comparisons were made on data (positive and negative changes) grouped in the following dyads:

1. Feedback versus No feedback (Table X).
2. Ideal + Actual feedback versus Ideal-Only feedback, versus Actual-Only feedback, versus No feedback (Table XI).
3. Ideal-Only feedback versus Actual-Only feedback, versus No feedback (Table XII).
4. Actual-Only feedback versus No feedback (Table XIII).
5. Commitment versus No commitment (Table XVI).
6. Commitment to change on Task Items versus No Commitment to change on Task Items (Table XVIII).
7. Commitment to change on Personal Items versus No Commitment to change on Personal Items (Table XVIII).

Results of these chi-square analyses are reported in the following section.

TABLE VIII

Number of Principals Exhibiting Positive and Negative Changes from Pre-Actual to Post-Actual

	Feedback Groups									
	Ideal + Actual Feedback (N = 55)		Ideal-Only Feedback (N = 53)		Actual-Only Feedback (N = 50)		No Feedback (N = 48)		Total Feedback (N = 158)	
	+	-	+	-	+	-	+	-	+	-
Task Items										
1	31	24	32	21	25	25	25	23	88	70
2	32	23	34	19	26	24	21	27	92	66
3	33	22	31	22	27	23	19	29	91	67
4	28	27	33	20	27	23	12	36	88	70
5	31	24	31	22	27	23	23	25	89	69
6	36	19	39	14	25	25	23	25	100	58
Personal Items										
7	29	26	30	23	22	28	23	25	81	77
8	31	24	32	21	19	31	22	26	82	76
9	31	24	29	24	21	29	21	27	81	77
10	23	32	25	28	16	34	18	30	64	94
11	26	29	24	29	23	27	12	36	73	85
12	23	32	32	21	24	26	21	27	79	79
Items										
1 - 6	33	22	35	18	26	24	20	28	94	64
7 - 12	27	28	31	22	23	27	19	29	81	77
1 - 12	32	23	35	18	27	23	21	27	94	64

TABLE IX

Number of Principals Exhibiting Positive and Negative Changes from Pre-Actual to Post-Actual

	Commitment Groups					
	Commitment to Task Assistance (N = 109)		Commitment to Personal Support (N = 25)		No Commitment (N = 72)	
	+	-	+	-	+	-
Task Items						
1	60	49	8	17	45	27
2	54	55	14	11	45	27
3	58	51	10	15	42	30
4	47	62	10	15	43	29
5	61	48	11	14	40	32
6	62	47	14	11	47	25
Personal Items						
7	55	54	12	13	37	35
8	56	53	13	12	35	37
9	58	51	14	11	30	42
10	49	60	12	13	21	51
11	48	61	10	15	27	45
12	55	54	10	15	35	37
Items						
1 - 6	57	52	10	15	47	25
7 - 12	55	54	11	14	34	38
1 - 12	61	48	11	14	43	29

RESULTS OF CHI-SQUARE TESTS

This section will discuss the results of chi-square analyses of the extent to which patterns of change supported the hypotheses.

Feedback

The effectiveness of feedback in producing positive change in principals' behavior was tested by comparing changes over all feedback groups with changes in the No Feedback Group. Results of this comparison were reported in Table X. Statistically significant differences in the proportion of principals who made positive changes were found on four of 12 comparisons made -- $p < .05$ on Item 3 and the subtotal of Items 1 - 6, $p < .01$ on Item 11, and $p < .005$ on Item 4. (See p. 30 for the wording of the items.) Results for Items 2 and 6, and for the mean over Items 7 - 12, and 1 - 12 approached statistical significance at the .05 level. All of these differences indicated that feedback increased the proportion of positive changes. Moreover, the percentages of principals making positive changes are higher on all 12 items, and on the mean over Items 1 - 6, 7 - 12, and 1 - 12 within the group which received feedback than within the group which received no feedback.

The finding of several statistically significant differences in numbers of principals who exhibited positive changes means that Hypothesis I can be accepted for the items involved. The extent to which the pattern of the ratio of positive to negative changes favors feedback lends some support to the hypothesis that feedback of the kind used here produces behavior change in the desired direction.

TABLE X

Principals Who Made Positive Change Toward Ideal
from Pre-Actual to Post-Actual
Feedback versus No Feedback.

	All Feedback (f = 158)		No Feedback (f = 48)		
	f +	% +	f +	% +	Chi-square
Task Items					
1	88	55.7%	25	52.1%	0.194
2	92	58.2	21	43.8	3.116
3	91	57.6	19	39.6	4.800*
4	88	55.7	12	25.0	13.888***
5	89	56.3	23	47.9	1.050
6	100	63.3	23	47.9	3.617
Personal Items					
7	81	51.3	23	47.9	0.165
8	82	51.9	22	45.8	0.542
9	81	51.3	21	43.8	0.832
10	64	40.5	18	37.5	0.139
11	73	46.2	12	25.0	6.829**
12	79	50.0	21	43.8	0.576
Items					
1 - 6	94	59.5	20	41.7	4.734*
7 - 12	81	51.3	19	39.6	2.012
1 - 12	94	59.5	21	43.8	3.700

* $p < .05$
** $p < .01$
*** $p < .005$

Ideal + Actual Feedback

It was hypothesized that principals who receive both Ideal and Actual feedback information change more toward the ideal than do principals who receive Ideal-Only, Actual-Only, or No feedback. Table XI reports the results of chi-square analyses testing this hypothesis.

Statistically significant differences between Ideal + Actual feedback and No feedback were found on Items 3 ($p<.05$), 4 ($p<.01$), and 11 ($p<.02$). These differences favored Ideal + Actual feedback. Differences in the percentages of principals who made positive change favor Ideal + Actual over No feedback on 11 of the 12 items (i.e., all items except Item 12), and on the mean over Items 1 - 6, 7 - 12, and 1 - 12.

None of the differences between numbers of principals who made positive changes is statistically significant when Ideal + Actual changes are compared with Actual-Only changes. Differences in the percentage of principals who made positive change favor Ideal + Actual over Actual-Only on ten of the 12 items, and on the mean over Items 1 - 6, 7 - 12, and 1 - 12. Differences in the percentages of positive change favor Actual-Only feedback on Items 4 and 12.

When Ideal + Actual and Ideal-Only feedback are compared, no differences are found to be statistically significant. Differences in the percentage of principals who made positive change favor Ideal + Actual on three items, Items 3, 9, and 11. Differences favor Ideal-Only feedback on the remaining nine items, and on the means over Items 1 - 6, 7 - 12, and 1 - 12.

The results of these tests raise some interesting questions concerning the hypothesis of the effectiveness of Ideal + Actual feedback. Certainly

TABLE XI

Principals Who Made Positive Change Toward Ideal from Pre-Actual to Post-Actual: Ideal + Actual versus Ideal Only; versus Actual-Only; versus No Feedback.

	Ideal + Actual (f = 55)		Ideal (f = 53)			Actual (f = 50)			None (f = 48)		
	f +	% +	f +	% +	χ^2	f +	% +	χ^2	f +	% +	χ^2
Task Items											
1	31	56.4%	32	60.4%	0.179	25	50.0%	0.426	25	52.1%	0.189
2	32	58.2	34	64.2	0.405	26	52.0	0.405	21	43.8	2.137
3	33	60.0	31	58.5	0.026	27	54.0	0.385	19	39.6	4.274*
4	28	50.9	33	62.3	1.416	27	54.0	0.100	12	25.0	7.243***
5	31	56.4	31	58.5	0.050	27	54.0	0.059	23	47.9	0.733
6	36	65.5	39	73.6	0.841	25	50.0	2.570	23	47.9	3.222
Personal Items											
7	29	52.7	30	56.7	0.164	22	44.0	0.799	23	47.9	0.237
8	31	56.4	32	60.4	0.179	19	38.0	1.138	22	45.8	0.138
9	31	56.4	29	54.7	0.030	21	42.0	2.162	21	43.8	1.631
10	23	41.8	25	47.2	0.313	16	32.0	1.018	18	37.5	0.200
11	26	47.3	24	45.3	0.043	23	46.0	0.017	12	25.0	5.461**
12	23	41.8	32	60.4	3.720	24	48.0	0.405	21	43.8	0.039
Items											
1 - 6	33	60.0	35	66.0	0.422	26	52.0	0.681	20	41.7	3.449
7 - 12	27	49.1	31	58.5	0.959	23	46.0	0.100	19	39.6	0.937
1 - 12	32	58.2	35	66.0	0.707	27	54.0	0.186	21	43.8	2.137

* $p < .05$
** $p < .02$
*** $p < .01$

the pattern of positive changes suggests that giving principals both Ideal and Actual feedback may be more effective than giving Actual-Only feedback or No feedback. The pattern is reversed, although with no statistically significant differences when Ideal + Actual feedback is compared with Ideal-Only feedback. This question is discussed further in the next section.

Ideal-Only Feedback

It was hypothesized that principals who receive Ideal-Only feedback change more in the direction of the ideal than do principals who receive Actual-Only feedback or No feedback. Table XII gives the results of chi-square analyses testing this hypothesis.

First we will discuss differences in positive changes when Ideal-Only feedback and No feedback are compared. Statistically significant differences at the .05 level are found on Items 2, 11, and the mean over Items 1 - 12; at the .02 level on the mean over Items 1 - 6; at the .01 level on Item 6; and at the .005 level on Item 4. The direction of the difference in the percentage of positive changes favors Ideal-Only feedback over No feedback on all 12 items, and the mean over Items 1 - 6, 7 - 12, and 1 - 12.

When Ideal-Only feedback is compared with Actual-Only feedback, statistically significant differences are found on Item 6 ($p<.02$) and on Item 8 ($p<.05$). The direction of differences favors Ideal-Only feedback on all items except Item 11.

The results of these comparisons may be considered in light of the question raised by the comparison of Ideal + Actual feedback with Ideal-Only discussed in the previous section.

TABLE XII

Principals Who Made Positive Change toward Ideal from Pre-Actual to Post-Actual: Ideal-Only versus Actual-Only; versus No Feedback

	Ideal (f = 53)		Actual (f = 50)			No Feedback (f = 48)		
	f+	%+	f+	%+	χ^2	f+	%+	χ^2
Task Items								
1	32	60.4%	25	50.0%	1.121	25	52.1%	0.705
2	34	64.2	26	52.0	1.562	21	43.8	4.227*
3	31	58.5	27	54.0	0.211	19	39.6	3.602
4	33	62.3	27	54.0	0.723	12	25.0	14.159****
5	31	58.5	27	54.0	0.211	23	47.9	1.132
6	39	73.6	25	50.0	6.083**	23	47.9	7.001***
Personal Items								
7	30	56.7	22	44.0	1.635	23	47.9	0.762
8	32	60.4	19	38.0	5.154*	22	45.8	2.142
9	29	54.7	21	42.0	1.666	21	43.8	1.212
10	25	47.2	16	32.0	2.471	18	37.5	0.963
11	24	45.3	23	46.0	0.005	12	25.0	4.517*
12	32	60.4	24	48.0	1.589	21	43.8	2.792
Items								
1 - 6	35	66.0	26	52.0	2.099	20	41.7	6.032**
7 - 12	31	58.5	23	46.0	1.609	19	39.6	3.602
1 - 12	35	66.0	27	54.0	1.556	21	43.8	5.065*

* $p < .05$
** $p < .02$
*** $p < .01$
**** $p < .005$

The rationale for testing the effectiveness of Ideal-Only feedback was proposed on page 16 of this report. There is certainly only limited statistically significant support in the results of tests reported here for the proposition that simply informing the principal of behaviors that his teachers consider "ideal" will create sufficient motivation for him to move in that direction. Nonetheless, the pattern of more consistent positive change in the Ideal-Only Feedback Group when compared with any of the other feedback treatment groups suggests that this would be a fruitful area for further research.

Actual-Only Feedback

Comparisons were made between the number of principals who made positive changes in the group receiving Actual-Only feedback and the group receiving No feedback. Table XIII shows the results of these comparisons. Differences on Item 4 were statistically significant at the .005 level, and on Item 11 at the .05 level. These differences favored Actual-Only feedback over No feedback. The direction of differences in percentages of principals who made positive change favors Actual-Only feedback on Items 2, 3, 4, 5, 6, 11, 12, and the mean over Items 1 - 6, 7 - 12, and 1 - 12.

Table XIV summarizes the percentages of principals who made positive changes within feedback groups on each item, and gives the rank of these percentages for each treatment group. This table suggests a pattern of differences in frequency of positive change between the Actual-Only Feedback Group and the No Feedback Group. The Actual-Only Feedback Group exhibited the lowest percentage of positive change on five of the 12 items (one Task and four Personal). The No Feedback Group exhibited the lowest percentage of

TABLE XIII

Principals Who Made Positive Change toward Ideal from Pre-Actual to Post-Actual: Actual-Only versus No Feedback

	Actual (f = 50)		No Feedback (f = 48)		
	f+	%+	f+	%+	χ^2
Task Items					
1	25	50.0%	25	52.1%	0.043
2	26	52.0	21	43.8	0.668
3	27	54.0	19	39.6	2.044
4	27	54.0	12	25.0	8.596****
5	27	54.0	23	47.9	0.363
6	25	50.0	23	47.9	0.043
Personal Items					
7	22	44.0	23	47.9	0.151
8	19	38.0	22	45.8	0.618
9	21	42.0	21	43.8	0.031
10	16	32.0	18	37.5	0.327
11	23	46.0	12	25.0	4.704*
12	24	48.0	21	43.8	0.178
Items					
1 - 6	26	52.0	20	41.7	1.050
7 - 12	23	46.0	19	39.6	0.412
1 - 12	27	54.0	21	43.8	1.030

* $p < .05$
**** $p < .005$

TABLE XIV

Percent of Principals Who Made Positive Change toward Ideal
from Pre-Actual to Post-Actual
by Feedback Treatment Groups

	Ideal + Actual (N = 55)		Ideal (N = 53)		Actual (N = 50)		No Feedback (N = 48)		All Feedback (N = 158)
	%+	% Rank	%+	% Rank	%+	% Rank	%+	% Rank	%+
Task Items									
1	56.4%	2	60.4%	1	50.0%	4	52.1%	3	55.7%
2	58.2	2	64.2	1	52.0	3	43.8	4	58.2
3	60.0	1	58.5	2	54.0	3	39.6	4	57.6
4	50.9	3	62.3	1	54.0	2	25.0	4	55.7
5	56.4	2	58.5	1	54.0	3	47.9	4	56.3
6	65.5	2	73.6	1	50.0	3	47.9	4	63.3
Personal Items									
7	52.7	2	56.7	1	44.0	4	47.9	3	51.3
8	56.4	2	60.4	1	38.0	4	45.8	3	51.9
9	56.4	1	54.7	2	42.0	4	43.8	3	51.3
10	41.8	2	47.2	1	32.0	4	37.5	3	40.5
11	47.3	1	45.3	3	46.0	2	25.0	4	46.2
12	41.8	4	60.4	1	48.0	2	43.8	3	50.0
Items									
1 - 6	60.0	2	66.0	1	52.0	3	41.7	4	59.5
7 - 12	49.1	2	58.5	1	46.0	3	39.6	4	51.3
1 - 12	58.2	2	66.0	1	54.0	3	43.8	4	59.5

positive change on six of the 12 items (five Task and one Personal). Reference will be made to this observed pattern at a later point in the discussion.

COMMITMENT TO CHANGE

It was hypothesized that principals who make a commitment to change their behavior change more in the direction of the ideal than do principals who do not make such a commitment. Table XV shows the number and the percent of principals who made positive change within each of the three commitment groups. Table XVI shows results of chi-square analyses testing Hypothesis IV.

The two commitment groups (Task Commitment and Personal Commitment) were combined and compared with the No Commitment Group. Statistically significant differences were found on Items 4, and 10, and on the mean over Items 1 - 6. Differences statistically significant at the .02 level on Item 4 and at the .05 level on the mean over Items 1 - 6 favored No Commitment. Differences statistically significant at the .05 level on Item 10 favored Commitment. The direction of differences favored No Commitment on Items 1, 2, 3, 4, 5, 6, 7, and on the mean over Items 1 - 6 and 1 - 12. The direction of differences favored Commitment on Items 8, 9, 10, and 11, and on the mean over Items 7 - 12. No difference was observed on Item 12.

Again it may be noted that there seems to be a difference in the reaction to treatments of the items in the two categories (the Task Assistance category and the Personal Support category), as was noted in the comparison of Actual-Only feedback and No feedback. Tendencies have been noted now which suggest that differences on Task Assistance items favor Actual-Only feedback

TABLE XV

Principals Who Made Positive Change toward Ideal from Pre-Actual to Post-Actual by Commitment Groups

	Commitment to Task Assistance (N = 109)			Commitment to Personal Support (N = 25)			No Commitment (N = 72)		
	f +	% +	% Rank	f +	% +	% Rank	f +	% +	% Rank
Task Items									
1	60	55.0%	2	8	32.0%	3	45	62.5%	1
2	54	49.5	3	14	56.0	2	45	62.5	1
3	58	53.2	2	10	40.0	3	42	58.3	1
4	47	43.1	2	10	40.0	3	43	59.7	1
5	61	56.0	1	11	44.0	3	40	55.6	2
6	62	56.9	2	14	56.0	3	47	65.3	1
Personal Items									
7	55	50.5	2	12	48.0	3	37	51.4	1
8	56	51.4	2	13	52.0	1	35	48.6	3
9	58	53.2	2	14	56.0	1	30	41.7	3
10	49	45.0	2	12	48.0	1	21	29.2	3
11	48	44.0	1	10	40.0	2	27	37.5	3
12	55	50.5	1	10	40.0	3	35	48.6	2
Items									
1 - 6	57	52.3	2	10	40.0	3	47	65.3	1
7 - 12	55	50.5	1	11	44.0	3	34	47.2	2
1 - 12	61	56.0	2	11	44.0	3	43	59.7	1

TABLE XVI

Principals Who Made Positive Change toward Ideal from Pre-Actual to Post-Actual: Commitment versus No Commitment

	Commitment (N = 134)		No Commitment (N = 72)		
	N +	% +	N +	% +	χ^2
Task Items					
1	68	50.7%	45	62.5%	2.613
2	68	50.7	45	62.5	2.613
3	68	50.7	42	58.3	1.083
4	57	42.5	43	59.7	5.537**
5	72	53.7	40	55.6	0.063
6	76	56.7	47	65.3	1.427
Personal Items					
7	67	50.0	37	51.4	0.036
8	69	51.5	35	48.6	0.155
9	72	53.7	30	41.7	2.727
10	61	45.5	21	29.2	5.229*
11	58	43.3	27	37.5	0.646
12	65	48.5	35	48.6	0.0002
Items					
1 - 6	67	50.0	47	65.3	4.423*
7 - 12	66	49.3	34	47.2	0.077
1 - 12	72	53.7	43	59.7	0.682

* $p < .05$
** $p < .02$

when compared with No Feedback and No Commitment when compared with Commitment. The opposite tendency on Personal Support items has also been noted, a tendency to favor No Feedback when compared with Actual-Only Feedback, and Commitment when compared with No Commitment. Table XVII summarizes the findings which suggest these tendencies.

These findings suggest that different behaviors may respond differently to different feedback treatments and that the effects of making a commitment to change may also vary with the specific behavior.

Commitment to a Specific Area

This section will discuss the results of chi-square analyses testing the effects of commitment to change on a specific area, on changes observable. It was hypothesized that principals who committed themselves to "work on" a specific area of behavior are more likely to change in the direction of the ideal on items within that area than are principals who do not make such a commitment. Table XVIII shows the results of tests of this hypothesis.

The Task Assistance Commitment Group was compared with the total of all principals who were not in that group (i.e., the Personal Support Commitment Group plus the No Commitment Group) on Items 1 through 6 and on the mean over Items 1 - 6. The Personal Support Commitment Group was compared with the total of all principals not in that group (i.e., the Task Assistance Commitment Group plus the No Commitment Group) on Items 7 through 12, and on the mean over Items 7 - 12. No statistically significant differences were found. Results of these chi-square tests suggested that Hypothesis V should be rejected.

TABLE XVII

Items on Which Percentage of Principals Who Made Positive Changes Favors Actual-Only Feedback versus No Feedback, and Commitment versus No Commitment

	More Frequent Positive Change		More Frequent Positive Change	
	Actual Feedback	No Feedback	Commitment	No Commitment
Task Items				
1		x		x
2	x			x
3	x			x
4	x			x
5	x			x
6	x			x
Personal Items				
7		x		x
8		x	x	
9		x	x	
10		x	x	
11	x		x	
12	x		No difference	
Items				
1 - 6	x			x
7 - 12	x		x	
1 - 12	x			x

TABLE XVIII

Principals Who Made Positive Change - toward - Ideal
from Pre-Actual to Post-Actual
Commitment to Change in a Specified Area versus
No Commitment to Change in that Area

	Commitment to Task Assistance (f = 109)		No Commitment to Task Assistance (f = 97)			Commitment to Personal Support (f = 25)		No Commitment to Personal Support (f = 181)		
	f +	% +	f +	% +	χ^2	f +	% +	f +	% +	χ^2
Task Items										
1	60	55.0%	53	54.6%	0.003					
2	54	49.5	59	60.8	2.539					
3	58	53.2	52	53.6	0.003					
4	47	43.1	53	54.6	2.727					
5	61	56.0	51	52.6	0.237					
6	62	56.9	61	62.9	0.770					
Personal Items										
7						12	48.0%	92	50.8%	0.070
8						13	52.0	91	50.3	0.026
9						14	56.0	88	48.6	0.479
10						12	48.0	70	38.7	0.797
11						10	40.0	75	41.4	0.019
12						10	40.0	90	49.7	0.831
Items										
1 - 6	57	52.3	57	58.8	0.869					
7 - 12						11	44.0	89	49.2	0.340

The percentages of principals who made positive change were examined for these groups. The Task Assistance Commitment Group was compared with the group which had not made a commitment to the Task Assistance Area. Differences found favored the combined group of principals who had not committed themselves to the Task Assistance Area on four of the six Task Assistance items and on the mean over Items 1 - 6. Differences favored the Task Assistance Commitment Group on Items 1 and 5. The Personal Support Commitment Group was compared with the group which had not made a commitment to the Personal Support Area. Differences found favored the Personal Support Commitment Group on Items 8, 9, and 10. Differences favored the group which had made no commitment to the Personal Support Area on Items 7, 11, and 12, and on the mean over Items 7 - 12.

The percentages of principals within each of the three commitment groups who made positive change were reported in Table XV, page 54. Table XIX shows the commitment group exhibiting the highest percent of positive changes from pretest to posttest on each item. Principals in the Task Assistance Commitment Group made the highest percent of positive changes on one Task item (Item 5), on two Personal items, (Items 11 and 12), and on the mean over the Personal items (Items 7 - 12). Principals in the Personal Support Commitment Group made the highest percent of positive changes on three Personal items (Items 8, 9, and 10). The No Commitment Group made the highest percent of positive changes on five of the six Task items, one Personal item (Item 7), and on the mean over Items 1 - 6, and 1 - 12.

Hypotheses IV and V must be rejected on the basis of all statistical tests and on examination of the data for patterns of change.

TABLE XIX

Commitment Groups Exhibiting the Highest Percentage of Principals Who Made Positive Changes from Pretest to Posttest

	Task Commitment	Personal Commitment	No Commitment
Task Items			
1			x
2			x
3			x
4			x
5	x		
6			x
Personal Items			
7			x
8		x	
9		x	
10		x	
11	x		
12	x		
Items			
1 - 6			x
7 - 12	x		
1 - 12			x

SENSITIVITY OF THE ITEMS TO CHANGE

Comments have been made from time to time about some differences which may be noted in the percent of principals who made positive changes on items within the two categories. To examine possible subscale differences, comparisons were made of the percentages of principals who made positive change on the means over the two subgroups of items (Task Assistance, Items 1 - 6, and Personal Support, Items 7 - 12). Table XX shows the number and the percent of principals within each treatment group who made positive changes from pretest to posttest on means over each of the two subgroups of items. The percentage of principals who made positive change was higher on the Task Assistance subgroup than on the Personal Support subgroup under all feedback treatment conditions, under Task Commitment and under No Commitment. The percentage of principals who made positive change was higher on the Personal Support subgroup than on the Task Assistance subgroup only under Personal Commitment. Only under two conditions, No Feedback and Personal Commitment, was the percentage of principals who made positive change on the Task subgroup less than 50%. Under all conditions except those of Ideal Feedback and of Task Commitment the percentage of principals who made positive change on the Personal subgroup was less than 50%.

These results suggested that the Task items included in this study are more susceptible to positive change than the Personal items included. It seems reasonable to suggest that there are differences in the sensitivity to change of the items within the two subscales, and that this sensitivity may react differently to different kinds of feedback treatment and to making a commitment to change behavior.

TABLE XX

Principals Within Each Treatment Group Who Made Positive Changes from Pretest to Posttest on the Two Subtotals

	Task Assistance Items 1 - 6		Personal Support Items 7 - 12	
	Total +	% +	Total +	% +
Ideal + Actual Feedback (N = 55)	33	60.0%	27	49.0%
Ideal-Only Feedback (N = 53)	35	66.0	31	58.0
Actual-Only Feedback (N = 50)	26	52.0	23	46.0
No Feedback (N = 48)	20	41.6	19	39.5
Task Commitment (N = 109)	57	52.3	55	50.4
Personal Commitment (N = 25)	10	40.0	11	44.0
No Commitment (N = 72)	47	65.3	34	47.2

Chapter 4 will review the results of the experiment, will offer conclusions and implications for administration, and will consider questions raised for further study.

CHAPTER IV

Summary and Conclusions

This chapter will present a summary of the study and conclusions. It will discuss some implications for administration and some questions raised by the findings of the present study.

Review of the Project and of the Results

The project described in this report was an experimental study of the effects of different feedback treatments on the behavior of California public elementary school principals.

Method

A stratified random sample of schools was selected. Of the 463 principals who were asked to participate, 206 completed all phases of the study. This number included approximately 4% of the public elementary schools of California with an enrollment of 200 or more students as listed in the 1967 Directory of Administrative and Supervisory Personnel in California Public Schools.

An effort was made to balance the representation of schools by school size, by district size and organizational pattern (unified or non-unified), and by county elementary school density. Since participation was voluntary, the sample was not completely balanced within these categories. Conclusions and implications are necessarily subject to limitations imposed by the nature of the sample. The study was aimed at answering three questions, (1) Do elementary school principals change toward the teachers' ideal when provided with feedback information about how their teachers view their behavior? (2) Do different feedback treatments affect observed behavior change differentially? and (3) Does stating an intention to work on a specified area of behavior intensify the effect of feedback?

Approximately two-thirds of the principals specified one of two areas of principal-teacher interaction which they intended to "work on" during the course of the study. Each of these areas was identified and defined by six items on the rating scale used in the study. One area was called Task Assistance to the Teacher, the other Personal Support of the Teacher. Approximately one-third were not asked to make such a commitment.

Principals within each of the three commitment groups (Task Assistance Commitment, Personal Support Commitment and No Commitment) were randomly assigned to feedback treatment groups. One-fourth received a summarized report of their teachers' mean ratings of both the "ideal" and the "actual" principal. One-fourth received a report of the teachers' mean rating of the "ideal" principal only, one-fourth of the "actual" principal only, and one-fourth received no feedback until after the posttest.

Posttest mean ratings of the "actual" principal were the dependent variable, with pretest ratings serving as the covariate. Differences between posttest group means adjusted to eliminate pretest variance were tested for significance by means of analysis of covariance. Such analyses were made for nine of the 12 items of the rating scale (Items 9, 10, and 12 did not meet the assumption of parallel slopes for analysis of covariance), for the means over the two subgroups of items (1 - 6 and 7 - 12), and for the mean over all items (1 - 12). These analyses tested differences between adjusted posttest means for the effects of feedback, of commitment, and of the interaction of feedback and commitment.

Results

Only one comparison, on Item 3, found a statistically significant difference ($p < .05$) due to type of feedback. This difference indicated that Ideal + Actual feedback had a better effect than did No feedback. On the basis of the statistical tests originally planned (analysis of covariance) all hypotheses must be considered unsupported by the present data.

Closer examination of pretest and posttest mean scores revealed, however, that there were patterns of change which might reflect the effects of feedback. Pre-to-posttest changes were identified as positive (toward the ideal) or negative (away from the ideal or no change). Chi-square analyses were performed to test differences between groups in the number of principals who made positive changes.

Results of the chi-square analyses tended to support the feedback hypotheses. Differences in the percent of principals who made positive changes favored feedback over no feedback on all 12 items, on the means over the two subgroups and the mean over all items. The differences were statistically significant on three items and on the mean over Task items, Items 1 - 6.

The hypothesis that principals receiving Ideal + Actual feedback would change more than those receiving Ideal-Only feedback, Actual-Only feedback or No feedback was partially supported. Differences favored Ideal + Actual feedback over Ideal-Only feedback on three items. Differences favored Ideal + Actual feedback over Actual-Only feedback on ten items, and on the mean over Items 1 - 6, 7 - 12, and 1 - 12. Differences favored Ideal + Actual over No feedback on 11 items, and on the mean over Items 1 - 6, 7 - 12, and 1 - 12, and were statistically significant at the .05 level or less on three items.

Ideal-Only feedback was found to be the most effective of the treatments used in producing positive changes. Differences between Ideal-Only feedback and any other feedback treatment favored Ideal-Only feedback -- on nine items and the mean over Items 1 - 6, 7 - 12, and 1 - 12 when compared with Ideal + Actual feedback; on 11 items and the mean over Items 1 - 6, 7 - 12, and 1 - 12 when compared with Actual-Only feedback; and on all 12 items and the mean over Items 1 - 6, 7 - 12, and 1 - 12 when compared with No feedback. Differences between Ideal-Only feedback and No feedback differed from chance at the .05 level or less on four of the 12 items, on the mean over the Task items, 1 - 6, and on the mean over all items, 1 - 12.

Actual-Only feedback tended to promote greater positive change than No feedback on Task items but not on Personal items. Differences between the Actual-Only Feedback Group and the No Feedback Control Group were statistically significant on two items. Differences favored Actual-Only feedback on five of the six Task items, on two Personal items, and on the mean over Items 1 - 6, 7 - 12, and 1 - 12. Differences favored No feedback over Actual-Only on one Task item and four Personal items.

Results of analyses of differences between commitment groups did not support the hypotheses. Differences favored No commitment on 18 of the 29 comparisons made to examine the two commitment hypotheses. When results of the tests of hypotheses concerning commitment are considered as a whole, there seems to be an influence operating, but the effects are erratic and, in general, negative. Commitment seems to interact with both the specific behavior and the feedback treatment. Hypotheses of the effects of commitment in producing positive behavior change are rejected.

It may be relevant to review the question which Bennett raised concerning results of Lewin's studies. She suggested that Lewin's results are as easily explained by the act of making a group decision, which may be considered the development of a group norm, as by the public commitment.

In this light, the effects suggested in the analyses of Ideal-Only and of Actual-Only feedback may come into clearer focus. It seems reasonable to suggest that the "ideal" feedback may operate to clarify group norms for the principal. It also seems reasonable to suggest that a stated commitment to make an effort to change one's behavior in areas such as interaction with a work group may set up imbalances, as perhaps does "actual" feedback, which are difficult to resolve.

Interesting as these questions are to consider, they would be extremely difficult to test adequately. The present experiment has served only to raise the questions.

All in all, the results of the study partially support the hypotheses concerning the effects of feedback. Tests of the data by chi-square analyses show some support for the feedback hypotheses proposed. When the more rigorous tests of analyses of covariance, which take the amount of change into account, are made, the hypotheses are not supported. Chi-square analyses and patterns of positive change suggest that Ideal-Only feedback and Ideal + Actual feedback have the greatest positive effect in changing principal behavior. Actual-Only feedback may in some instances inhibit positive change. The conclusion is drawn from these analyses, however, that systematic written feedback, impersonal though it may be, did promote positive behavior change in many of the principals involved in the study.

Hypotheses regarding the effects of commitment to change behavior were not supported by the analyses. Results of the analyses suggest that commitment may have acted to inhibit change.

Task Assistance items were more sensitive to positive change than were Personal Support items. Changes on Task items, however, were influenced by the treatment variables as were Personal items. The number of principals who made positive change was generally higher than the number who made negative changes on Task items, while the opposite tendency was found on Personal items. Negative changes on Task items outnumbered positive changes only in the No Feedback Group and the Personal Commitment Group. Positive changes outnumbered negative changes on Personal items only in the Ideal-Only Feedback Group and the Task Commitment Group.

Implications for Administrative Practice and for Further Research

Before considering possible implications of these findings for the field of administration, one should remind himself of the limitations of the study.

Participation was voluntary, and conclusions apply only to principals willing to take part in such a project. Rigorous analyses of covariance which take the amount of change into account did not support the hypotheses. Acceptance of the hypotheses is based on chi-square analyses which are not influenced so much by the amount of change as by its mere occurrence in the hypothesized direction.

Within these limitations, results of the study suggest some important implications for the field of administration. Is clarification of the "ideal", or of what is desirable behavior, the essential element in motivating change? If so, this throws open the whole question of the most effective focus of evaluation: evaluation of administrators, of teachers, and of students. In what applications is "actual" feedback effective in producing positive behavior change? Is there a difference in feedback which is effective in producing task improvement and feedback which is effective in producing more positive personal relationships? Are teachers and administrators aware of what the other considers "ideal" behavior for their own role, or are they being inhibited by false impressions of expectations held for them? It was interesting to note that some principals were surprised that "ideal" was not rated "10" on all items.

It is possible that the tendencies observed for "commitment" to affect behavior change negatively may be explained by the fact that commitment was solicited. Such a commitment may not have represented a real acceptance of the group norms as specified in the feedback. This may in particular be true in reference to Task items on which more variation in views concerning what is desirable behavior may exist between the principal and the teachers. Principals may not have committed themselves actually to conform to the teachers' expectations in this area. In the area of Personal Support it seems reasonable to suggest that there is greater consensus as to what constitutes "ideal" behavior. This suggestion is supported to some degree by an examination of pretest means of teachers' ratings of the "actual" principal's behavior on each item as shown in Table III, page 32 of this report. Means of Personal items (7 - 12) are generally higher than means of Task items, and standard deviations are generally lower on Personal items than on Task items. A commitment to change behavior may have entailed a real acceptance of the group norm in the Personal area as revealed by feedback. A promise to "do better," unless it represents a real acceptance of a behavioral ideal may in itself have an inhibiting influence on positive behavior change.

Tendencies noted in changes within the Ideal Feedback Group may suggest that one effective technique of improving leadership is clarification of the leaders' own "ideals" and of the group's "ideals," specification of what each would like to see accomplished, with only a carefully individual and personal indication of the perception of "actual" behavior.

The results of this study suggest that further investigation into the areas of effectiveness of ideal and of actual feedback may be a productive direction for future research into the effectiveness of feedback in producing positive behavior change.

One further comment must be made about the study. During the course of the project personal contact was made with many of the principals who participated. The interest in participating in a research project promising insight into the problems involved in administration and sponsored by a university was high. Cooperation in all phases of the project was enthusiastic in spite of the inconvenience and attention to detail which participation in such a project requires. This interest and cooperation suggest that principals are eager to become involved in changes in education, and particularly to come closer to the possibilities for desirable change in themselves which research is opening up.

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APPENDICES

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APPENDIX A

QUESTIONNAIRES USED IN THE STUDY

A-1

PRINCIPAL'S INFORMATION QUESTIONNAIRE

SCHOOL:

1. What grades are included in your school? ____________

2. How many students were enrolled at the beginning of the school year in September? ____________

3. How many teachers are assigned half-time or more in your school? ____________

4. How many other certificated people are assigned to your school at least half-time? ____________

PRINCIPAL:

5. How many years of teaching experience have you had? ____________

6. How many years have you been the principal at this school? (Count this year as one full year.) ____________

7. How many years of experience have you had as a principal, including this school? ____________

8. Do you presently have teaching or administrative assignments other than your principalship here? ____________

   If yes, please specify____________________________________

9. Two areas of support to the teacher are identified in the Principal's Behavior Questionnaire. Which of these two areas do you feel you would most like to work on as a part of your continuing effort to develop and maintain an effective teaching situation in your school?

   CHECK ONE:

   TASK ASSISTANCE TO THE TEACHER ____________

   PERSONAL SUPPORT OF THE TEACHER ____________

PRINCIPAL'S INFORMATION QUESTIONNAIRE

SCHOOL:

1. What grades are included in your school? ________________

2. How many students were enrolled at the beginning of the school year in September? ________________

3. How many teachers are assigned half-time or more in your school? ________________

4. How many other certificated people are assigned to your school at least half-time? ________________

PRINCIPAL:

5. How many years of teaching experience have you had? ________________

6. How many years have you been the principal at this school? (Count this year as one full year.) ________________

7. How many years of experience have you had as a principal, including this school? ________________

8. Do you presently have teaching or administrative assignments other than your principalship here? ________________

If yes, please specify____

PRINCIPAL'S BEHAVIOR QUESTIONNAIRE

Your individual responses will be completely confidential and will not be made available to anyone other than the researcher. Information about your school will not be made available to anyone other than the research staff and you.

PART I: Your own behavior as you would describe it.

Consider the degree to which each statement describes your own behavior. Respond to each item, 1 through 12, on the basis of the ten-point scale on the answer sheet. For each item, circle the number on the answer sheet which gives the most accurate description of your behavior as you see it.

PART II: Your own behavior as you believe your teachers would describe it.

Consider each statement again. How do you feel your teachers in general would describe your behavior for each item? For each item, circle the number on the answer sheet which gives the most accurate description of your behavior as you believe your teachers would describe it.

ANSWER ALL QUESTIONS, 1 through 12, FOR BOTH PART I AND PART II ON THE ANSWER SHEET.

TASK ASSISTANCE TO THE TEACHER:

1. Encourages teachers to develop their own best teaching methods.
2. Gives worthwhile suggestions for improving classroom instruction.
3. Consults teachers in the handling of behavior problems which affect their classroom.
4. Brings to the attention of teachers information on teaching aids and methods of value to them in their work.
5. Enforces rules of student behavior to the best interests of those concerned.
6. Aids teachers in developing abilities of students at all levels.

PERSONAL SUPPORT OF THE TEACHER:

7. Displays interest in teachers' ideas.
8. Enlists participation by teachers in making decisions.
9. Gives teachers a feeling of support in front of pupils or other teachers.
10. Treats teachers with respect and courtesy.
11. Gives teachers the feeling that their work is important.
12. Respects teachers' authority regarding pupils' grades.

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IN TEACHING

PRINCIPAL'S BEHAVIOR QUESTIONNAIRE

SCHOOL CODE____________

CIRCLE ONLY ONE NUMBER FOR EACH ITEM

PART I: Your own behavior as you would describe it.

	Not at all Like	Very little Like		Somewhat Like		Quite a lot Like		Very much Like		Extremely Like
1.	1	2	3	4	5	6	7	8	9	10
2.	1	2	3	4	5	6	7	8	9	10
3.	1	2	3	4	5	6	7	8	9	10
4.	1	2	3	4	5	6	7	8	9	10
5.	1	2	3	4	5	6	7	8	9	10
6.	1	2	3	4	5	6	7	8	9	10
7.	1	2	3	4	5	6	7	8	9	10
8.	1	2	3	4	5	6	7	8	9	10
9.	1	2	3	4	5	6	7	8	9	10
10.	1	2	3	4	5	6	7	8	9	10
11.	1	2	3	4	5	6	7	8	9	10
12.	1	2	3	4	5	6	7	8	9	10

PART II: Your own behavior as you believe your teachers would describe it.

	Not at all Like	Very little Like		Somewhat Like		Quite a lot Like		Very much Like		Extremely Like
1.	1	2	3	4	5	6	7	8	9	10
2.	1	2	3	4	5	6	7	8	9	10
3.	1	2	3	4	5	6	7	8	9	10
4.	1	2	3	4	5	6	7	8	9	10
5.	1	2	3	4	5	6	7	8	9	10
6.	1	2	3	4	5	6	7	8	9	10
7.	1	2	3	4	5	6	7	8	9	10
8.	1	2	3	4	5	6	7	8	9	10
9.	1	2	3	4	5	6	7	8	9	10
10.	1	2	3	4	5	6	7	8	9	10
11.	1	2	3	4	5	6	7	8	9	10
12.	1	2	3	4	5	6	7	8	9	10

Write any comments here:

STANFORD CENTER FOR RESEARCH AND DEVELOPMENT IN TEACHING

PRINCIPAL'S BEHAVIOR QUESTIONNAIRE

You do not need to identify yourself in any way. Your individual responses will be completely confidential and will not be made available to anyone other than the researcher. Summarized information from your school will not be made available to anyone other than the research staff and your principal.

PART I: The behavior of an Ideal principal.

Consider the degree to which each statement describes the behavior of an ideal principal. Respond to each item, 1 through 12, on the basis of the ten-point scale on the answer sheet. For each item, circle the number on the answer sheet which gives the most accurate description of the behavior of an ideal principal.

PART II: The behavior of your own principal as you see it.

Consider each statement again. Consider the degree to which each statement describes the behavior of your own principal. For each item, circle the number on the answer sheet which gives the most accurate description of the behavior of your own principal as you see it.

ANSWER ALL QUESTIONS, 1 through 12, FOR BOTH PART I AND PART II ON THE ANSWER SHEET.

1. Encourages teachers to develop their own best teaching methods.
2. Gives worthwhile suggestions for improving classroom instruction.
3. Consults teachers in the handling of behavior problems which affect their classroom.
4. Brings to the attention of teachers information on teaching aids and methods of value to them in their work.
5. Enforces rules of student behavior to the best interests of those concerned.
6. Aids teachers in developing abilities of students at all levels.
7. Displays interest in teachers' ideas.
8. Enlists participation by teachers in making decisions.
9. Gives teachers a feeling of support in front of pupils or other teachers.
10. Treats teachers with respect and courtesy.
11. Gives teachers the feeling that their work is important.
12. Respects teachers' authority regarding pupils' grades.

STANFORD CENTER FOR RESEARCH AND DEVELOPMENT
IN TEACHING

PRINCIPAL'S BEHAVIOR QUESTIONNAIRE

SCHOOL CODE__________

CIRCLE ONLY ONE NUMBER FOR EACH ITEM

PART I: THE BEHAVIOR OF AN IDEAL PRINCIPAL

	Not at all Like	Very little Like		Somewhat Like		Quite a lot Like		Very much Like		Extremely Like
1.	1	2	3	4	5	6	7	8	9	10
2.	1	2	3	4	5	6	7	8	9	10
3.	1	2	3	4	5	6	7	8	9	10
4.	1	2	3	4	5	6	7	8	9	10
5.	1	2	3	4	5	6	7	8	9	10
6.	1	2	3	4	5	6	7	8	9	10
7.	1	2	3	4	5	6	7	8	9	10
8.	1	2	3	4	5	6	7	8	9	10
9.	1	2	3	4	5	6	7	8	9	10
10.	1	2	3	4	5	6	7	8	9	10
11.	1	2	3	4	5	6	7	8	9	10
12.	1	2	3	4	5	6	7	8	9	10

PART II: The behavior of YOUR OWN PRINCIPAL as you see it.

	Not at all Like	Very little Like		Somewhat Like		Quite a lot Like		Very much Like		Extremely Like
1.	1	2	3	4	5	6	7	8	9	10
2.	1	2	3	4	5	6	7	8	9	10
3.	1	2	3	4	5	6	7	8	9	10
4.	1	2	3	4	5	6	7	8	9	10
5.	1	2	3	4	5	6	7	8	9	10
6.	1	2	3	4	5	6	7	8	9	10
7.	1	2	3	4	5	6	7	8	9	10
8.	1	2	3	4	5	6	7	8	9	10
9.	1	2	3	4	5	6	7	8	9	10
10.	1	2	3	4	5	6	7	8	9	10
11.	1	2	3	4	5	6	7	8	9	10
12.	1	2	3	4	5	6	7	8	9	10

Write any comments here:

STANFORD CENTER FOR RESEARCH AND DEVELOPMENT IN TEACHING

PRINCIPAL'S INFORMATION PROJECT, 1968

Evaluation Information:

1. Were the graphs easy to read and understand? Yes_______ No_______

2. Will you be able to make use of this information in the coming weeks? Yes_______ No_______

3. Did your teachers in general seem to feel that this was a worthwhile procedure? Yes_______ No_______

4. You will recall that the items included in the Principal's Behavior Questionnaire were grouped into two areas of working with your teachers, TASK ASSISTANCE TO THE TEACHER, and PERSONAL SUPPORT OF THE TEACHER. You were asked earlier to select one of these two areas you felt you would most like to work on as a part of your continuing effort to develop and maintain an effective teaching situation in your school. At that time you indicated that your choice was:

____

The information which you have received may have strengthened your commitment, or it may have suggested a different focus. After examining the enclosed information, please indicate which of the two areas you now feel you would most like to work on in the coming weeks. In order to remind you of the items included in each of the two areas, a copy of the questions is attached.

CHECK ONE:

TASK ASSISTANCE TO THE TEACHER__________
(Items 1-6)

PERSONAL SUPPORT OF THE TEACHER__________
(Items 7-12)

Also, please choose three of the items within the area you have checked which you feel are most important in maintaining an effective teaching situation:

Item number________

____

____

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PRINCIPAL'S INFORMATION PROJECT, 1963

Evaluation Information:

1. Were the graphs easy to read and understand?

Yes_______

No_______

2. Will you be able to make use of this information in the coming weeks?

Yes_______

No_______

3. Did your teachers in general seem to feel that this was a worthwhile procedure?

Yes_______

No_______

Comments:

STANFORD CENTER FOR RESEARCH AND DEVELOPMENT IN TEACHING

PRINCIPAL'S INFORMATION PROJECT, 1968

Evaluation Information:

1. Were the questions easy to read and understand? Yes_______ No_______

2. Did the questions cover the most important aspects of maintaining an effective teaching situation? Yes_______ No_______

3. Did your teachers in general seem to feel that this was a worthwhile procedure? Yes_______ No_______

4. You will recall that the items included in the Principal's Behavior Questionnaire were grouped into two areas of working with your teachers, TASK ASSISTANCE TO THE TEACHER, and PERSONAL SUPPORT OF THE TEACHER. You were asked earlier to select one of these two areas you felt you would most like to work on as a part of your continuing effort to develop and maintain an effective teaching situation in your school. At that time you indicated that your choice was:

____

The information which you have received may have strengthened your commitment, or it may have suggested a different focus. After examining the enclosed information, please indicate which of the two areas you now feel you would most like to work on in the coming weeks. In order to remind you of the items included in each of the two areas, a copy of the questions is attached.

CHECK ONE:

TASK ASSISTANCE TO THE TEACHER_________
(Items 1-6)

PERSONAL SUPPORT OF THE TEACHER_________
(Items 7-12)

Also, please choose three of the items within the area you have checked which you feel are most important in maintaining an effective teaching situation:

Item number________

____

____

STANFORD CENTER FOR RESEARCH AND DEVELOPMENT IN TEACHING

PRINCIPAL'S INFORMATION PROJECT, 1968

Evaluation Information:

1. Were the questions easy to read and understand?
Yes______
No______

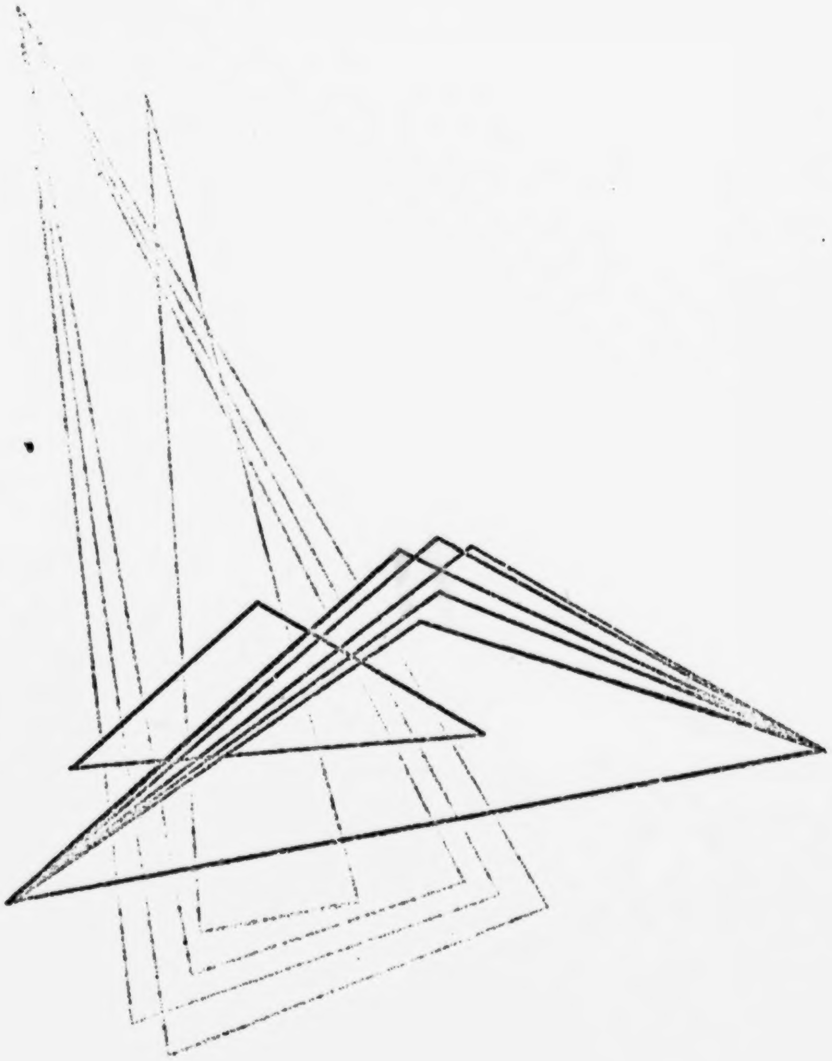
2. Did the questions cover the most important aspects of maintaining an effective teaching situation?
Yes______
No______

3. Did your teachers in general seem to feel that this was a worthwhile procedure?
Yes______
No______

Comments:

A-11

PRINCIPAL'S REPORT



PRINCIPAL'S INFORMATION PROJECT, 1968

Stanford Center for Research and Development in Teaching

88 (Cont'd)

REPORT ON YOUR TEACHERS' OPINIONS

The following pages show graphs which summarize the responses of your teachers to the Principal's Behavior Questionnaire. This information can have meaning only to you, since only you understand the situation in your school. We hope that the information will be of value to you.

The Items:

The items which appeared in the Principal's Behavior Questionnaire were selected after a review of the literature, discussions with principals and teachers, and two pretests. One pretest was conducted in an elementary district which includes nine schools. Teachers and principals were asked to select, from a pool of items, those which seemed most important in helping to maintain an effective and harmonious teaching situation in a school, and to identify each item as to the degree to which it expressed an "ideal." The items retained were then tested with experienced and inexperienced student teachers at two state colleges.

The Ratings:

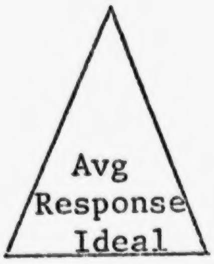
Your teachers were asked to indicate (Part I) the degree to which each item describes a behavior which is LIKE THE BEHAVIOR OF AN IDEAL PRINCIPAL, and (Part II) the degree to which each item describes a behavior which is LIKE THE BEHAVIOR OF YOUR OWN PRINCIPAL. A teacher may have responded, for example, that Item Number 3 describes a behavior which is Extremely Like (10) the behavior of an ideal principal, and Very Much Like (8 or 9) the behavior of his own principal.

The Graphs:

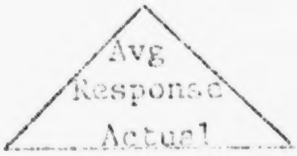
Each graph summarizes the information about responses of your teachers for one item. Information about responses which describe the Ideal Principal appears in red. Information about responses which describe their Own Principal appears in blue.

Each graph gives the following information about one item:

1. The mean (average) response of your teachers when describing the behavior of an Ideal Principal (red arrow).



2. The mean (average) response of your teachers when describing the behavior of their Principal (blue arrow).

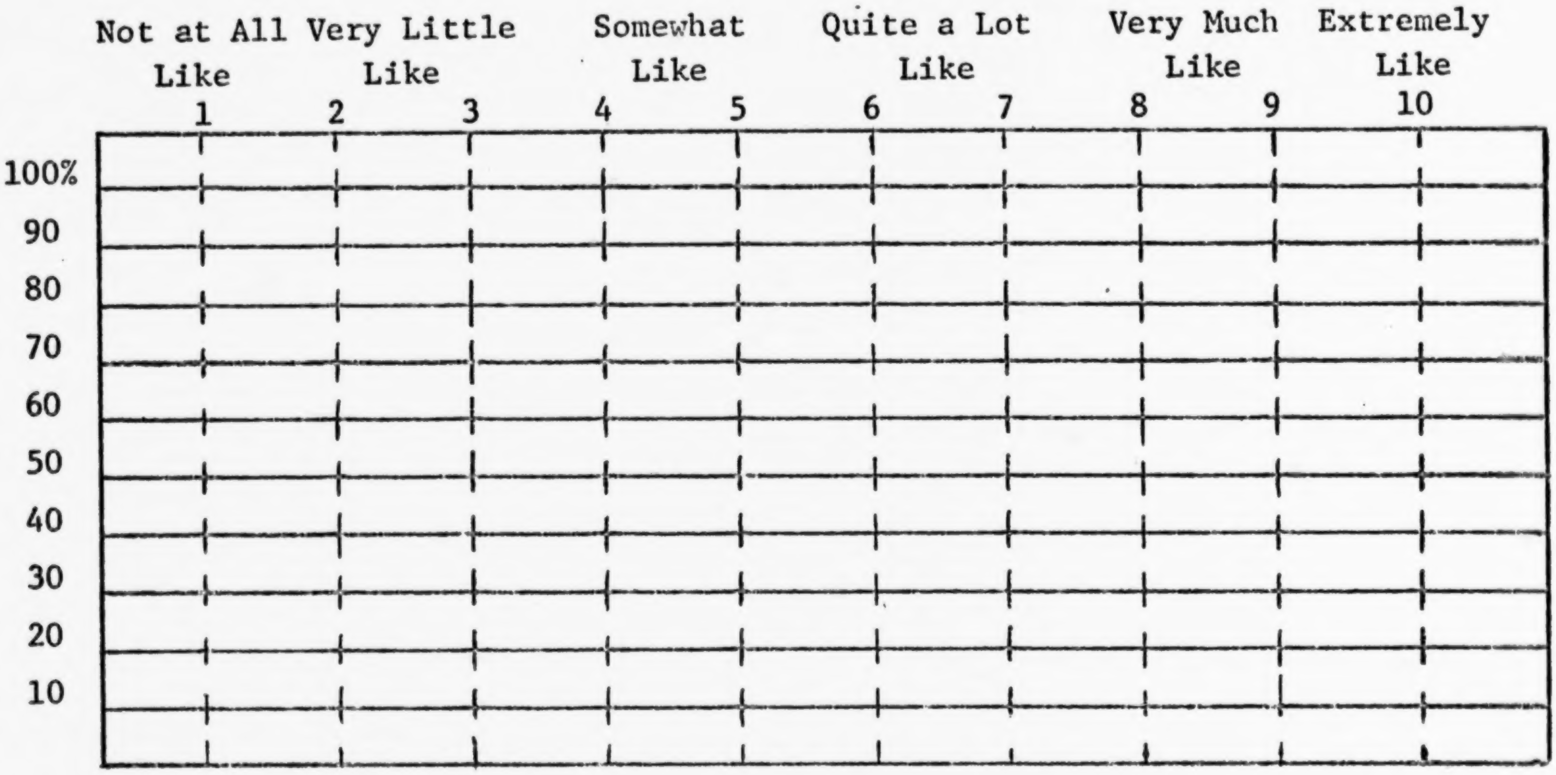


3. The percent of your teachers who chose each response when describing the behavior of an Ideal Principal (red bar).

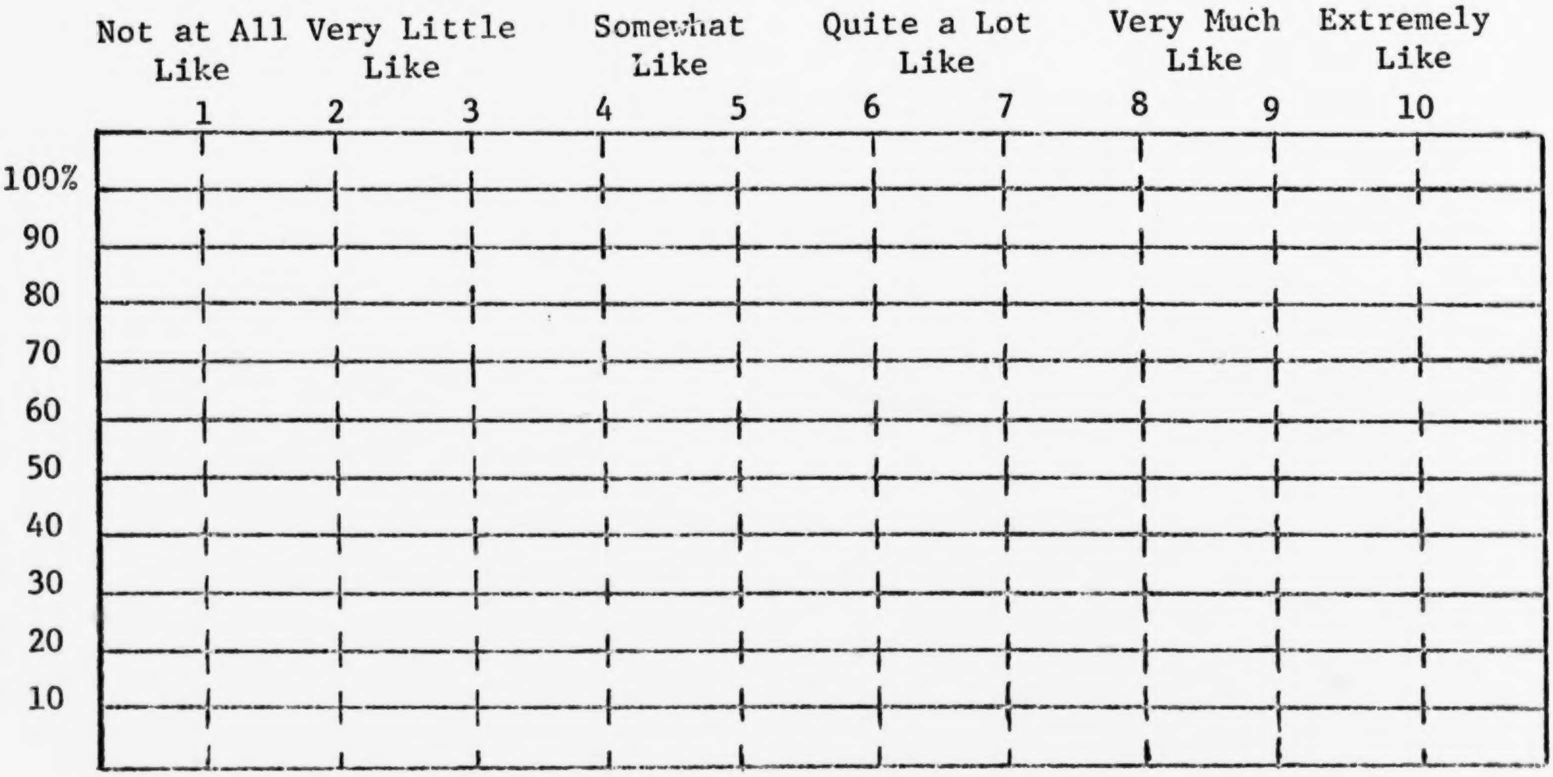
4. The percent of your teachers who chose each response when describing the behavior of their Own Principal (blue bar).

PRINCIPAL'S INFORMATION SUMMARY

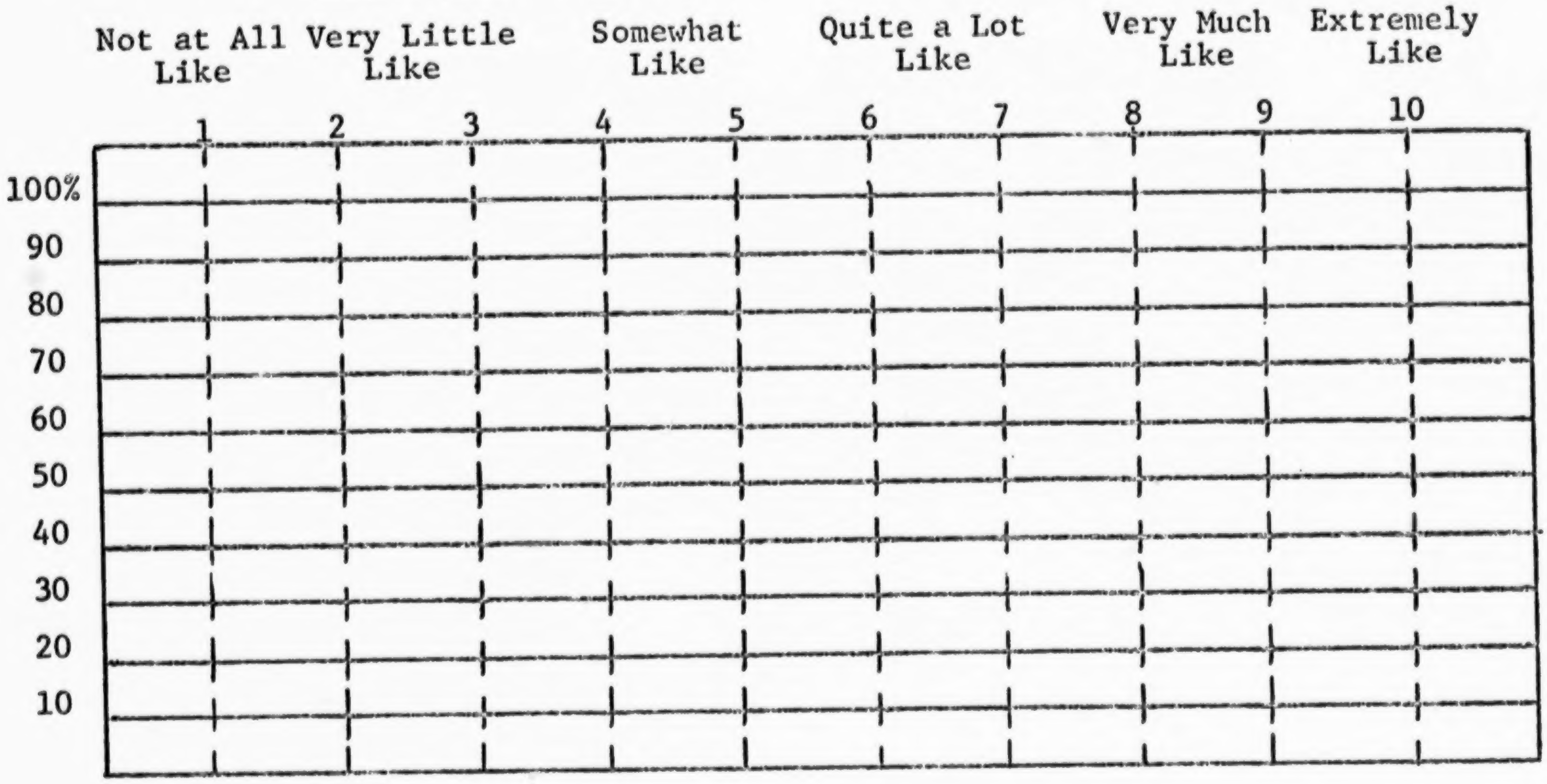
Item I: Encourages teachers to develop their own best teaching methods.



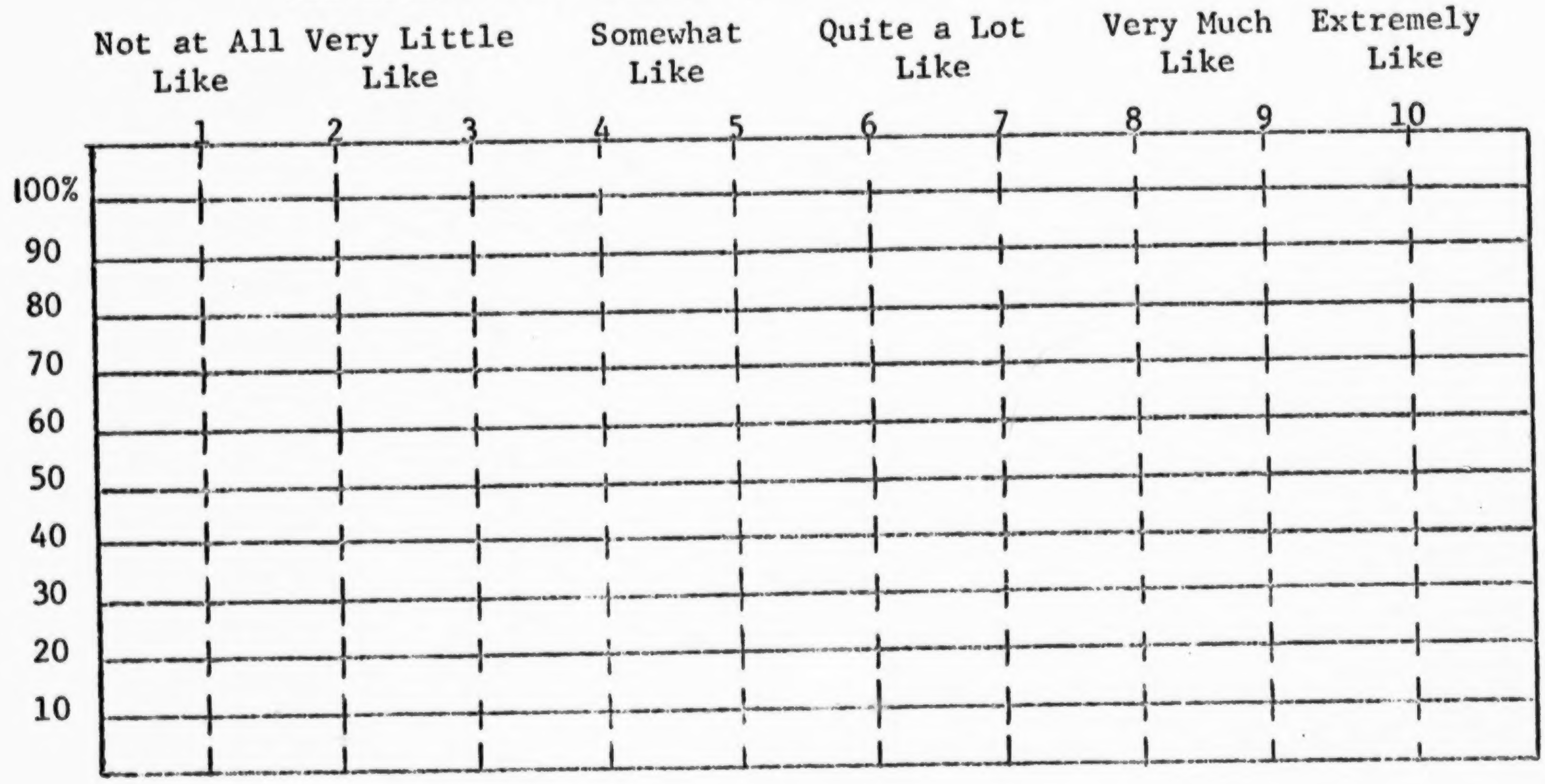
Item II: Gives worthwhile suggestions for improving classroom instruction.



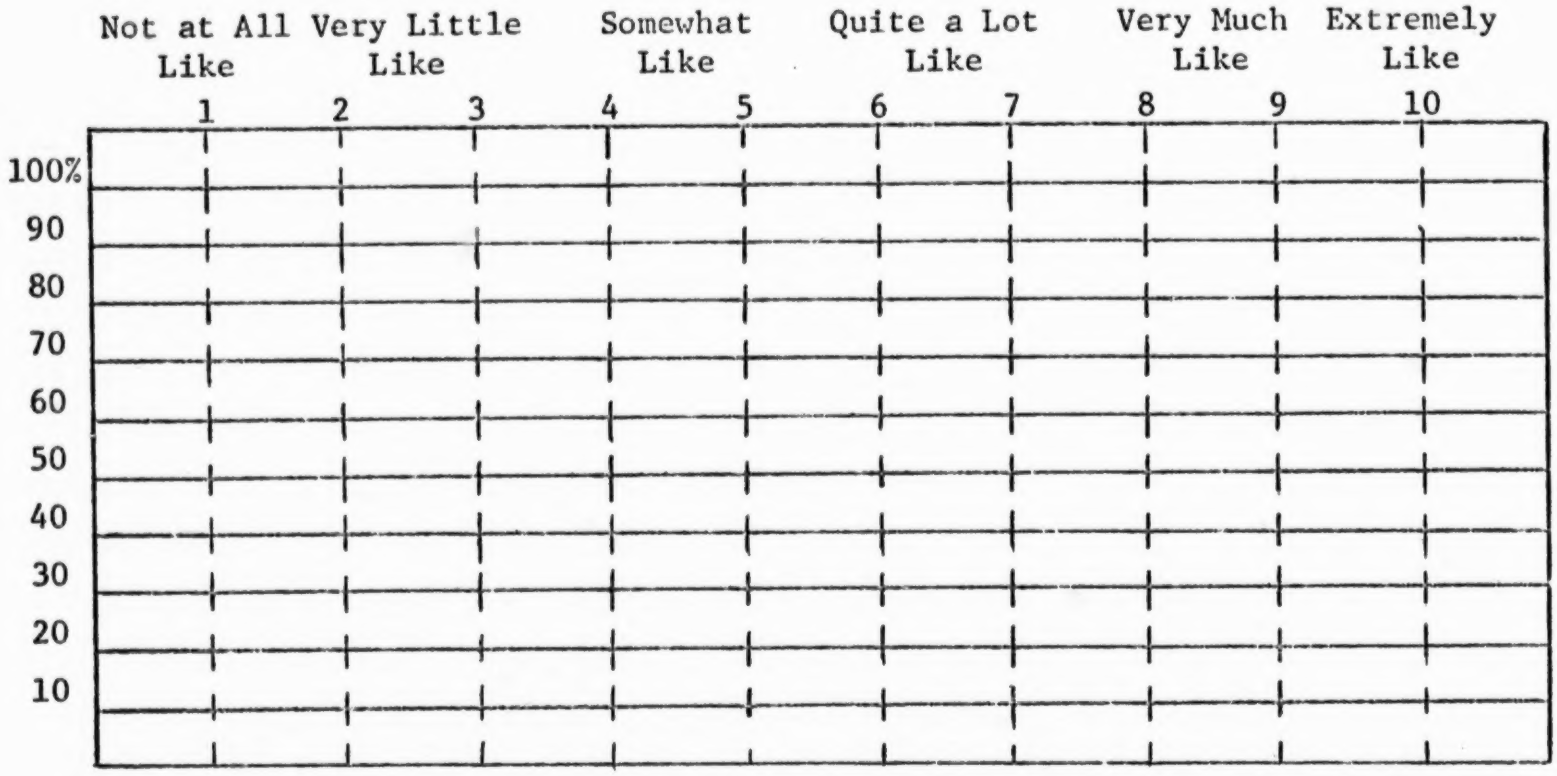
Item III: Consults teachers in the handling of behavior problems which affect their classroom.



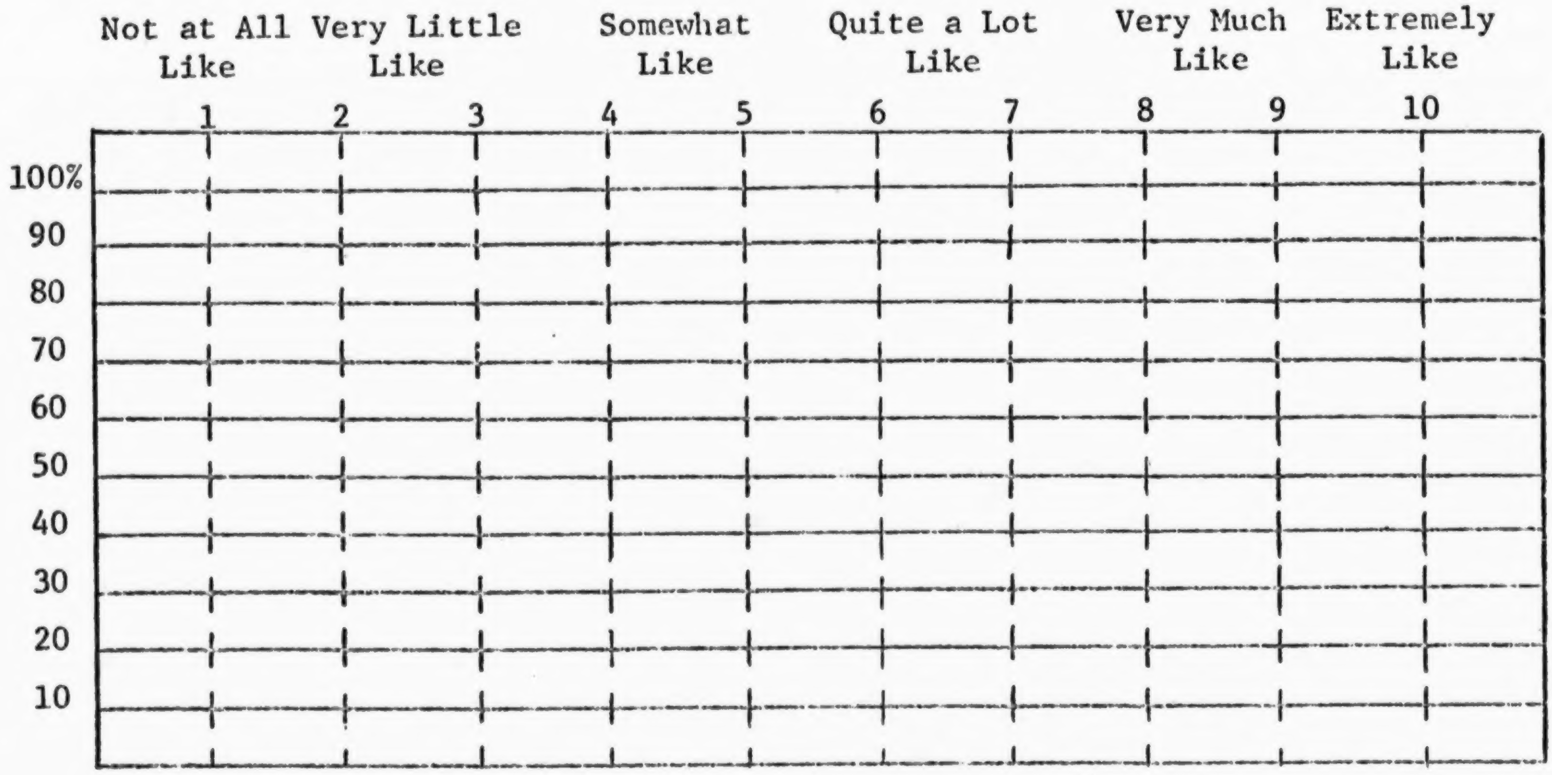
Item IV: Brings to the attention of teachers information on teaching aids and methods of value to them in their work.



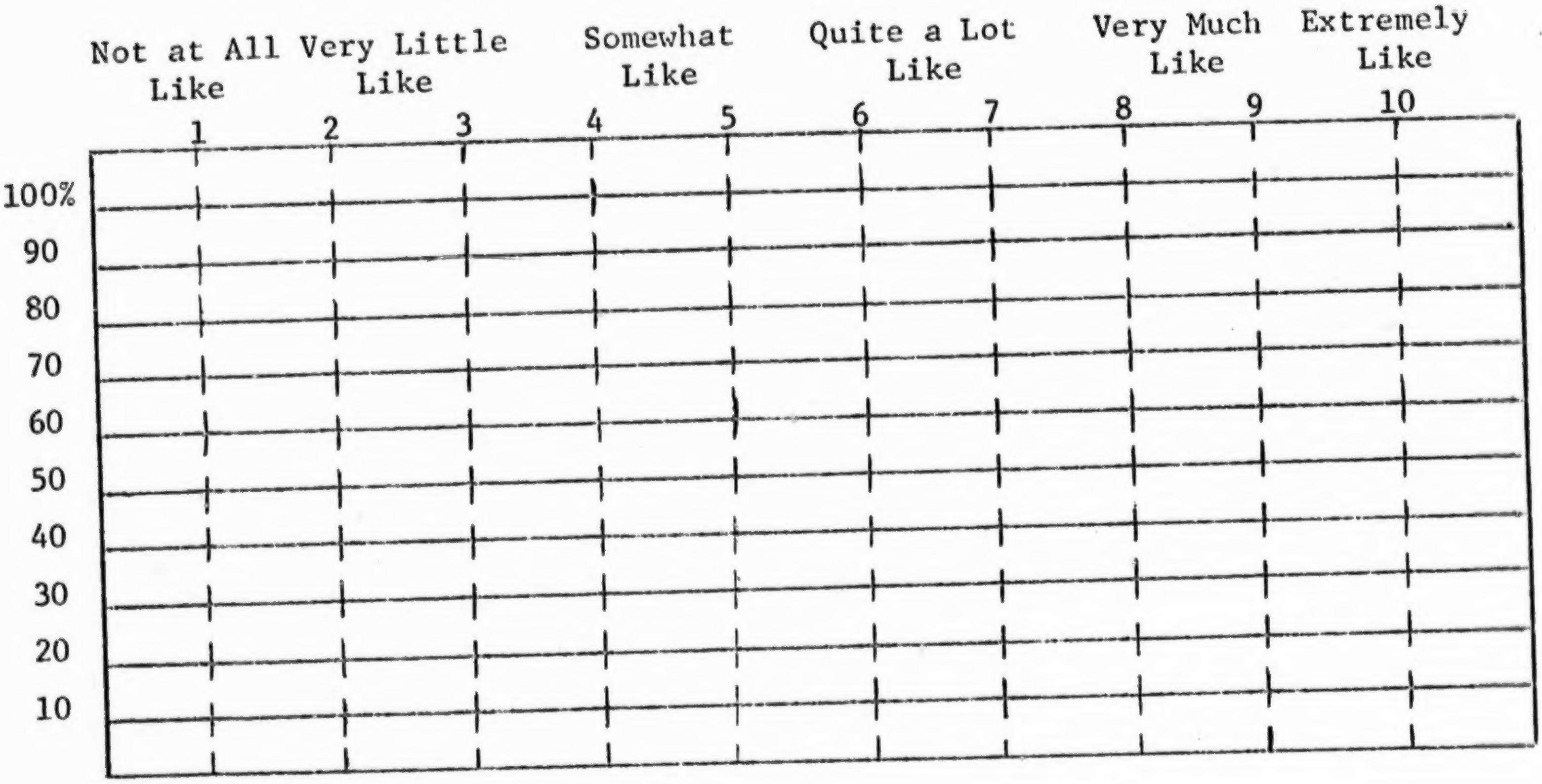
Item V: Enforces rules of student behavior to the best interests of those concerned.



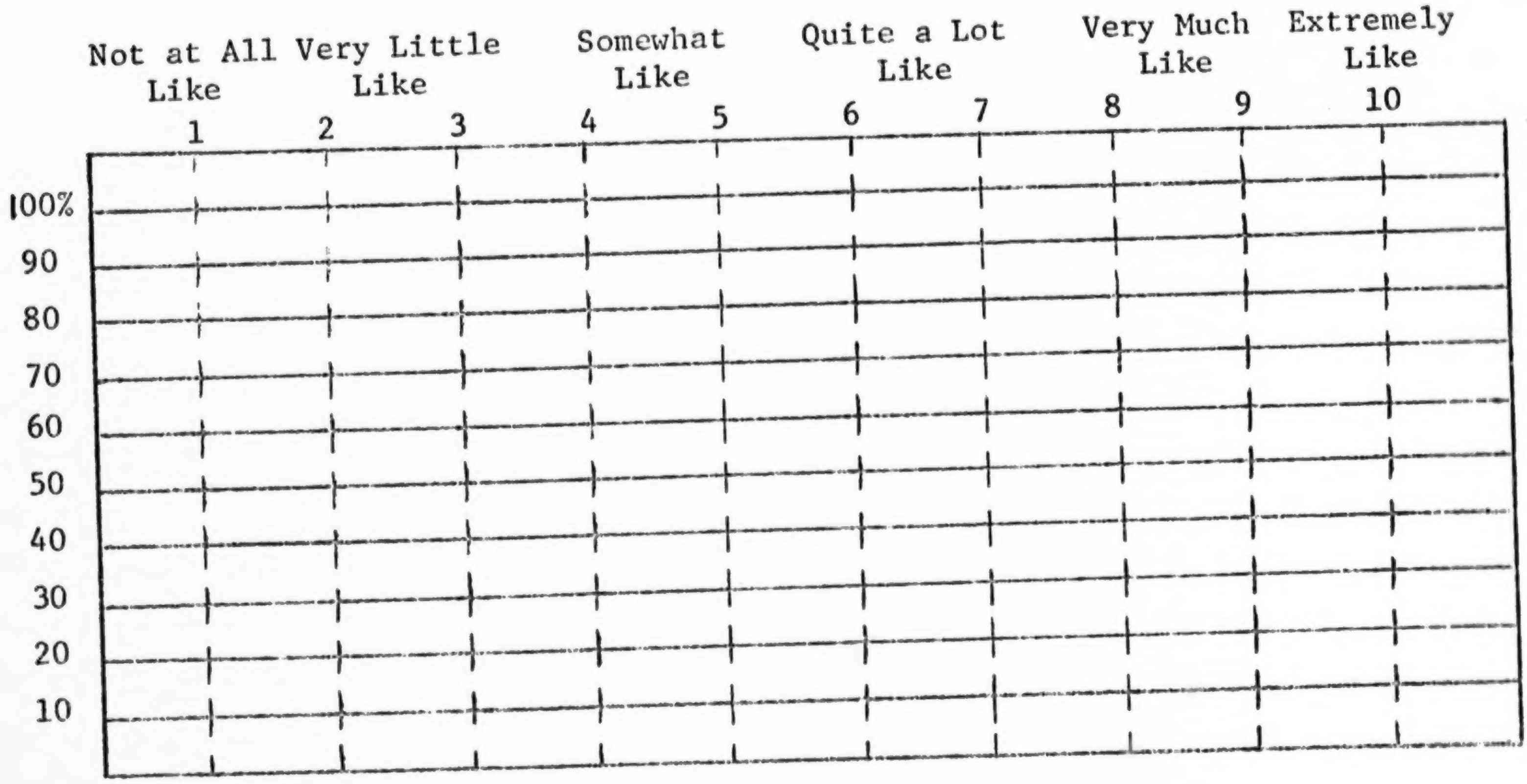
Item VI: Aids teachers in developing abilities of students at all levels.



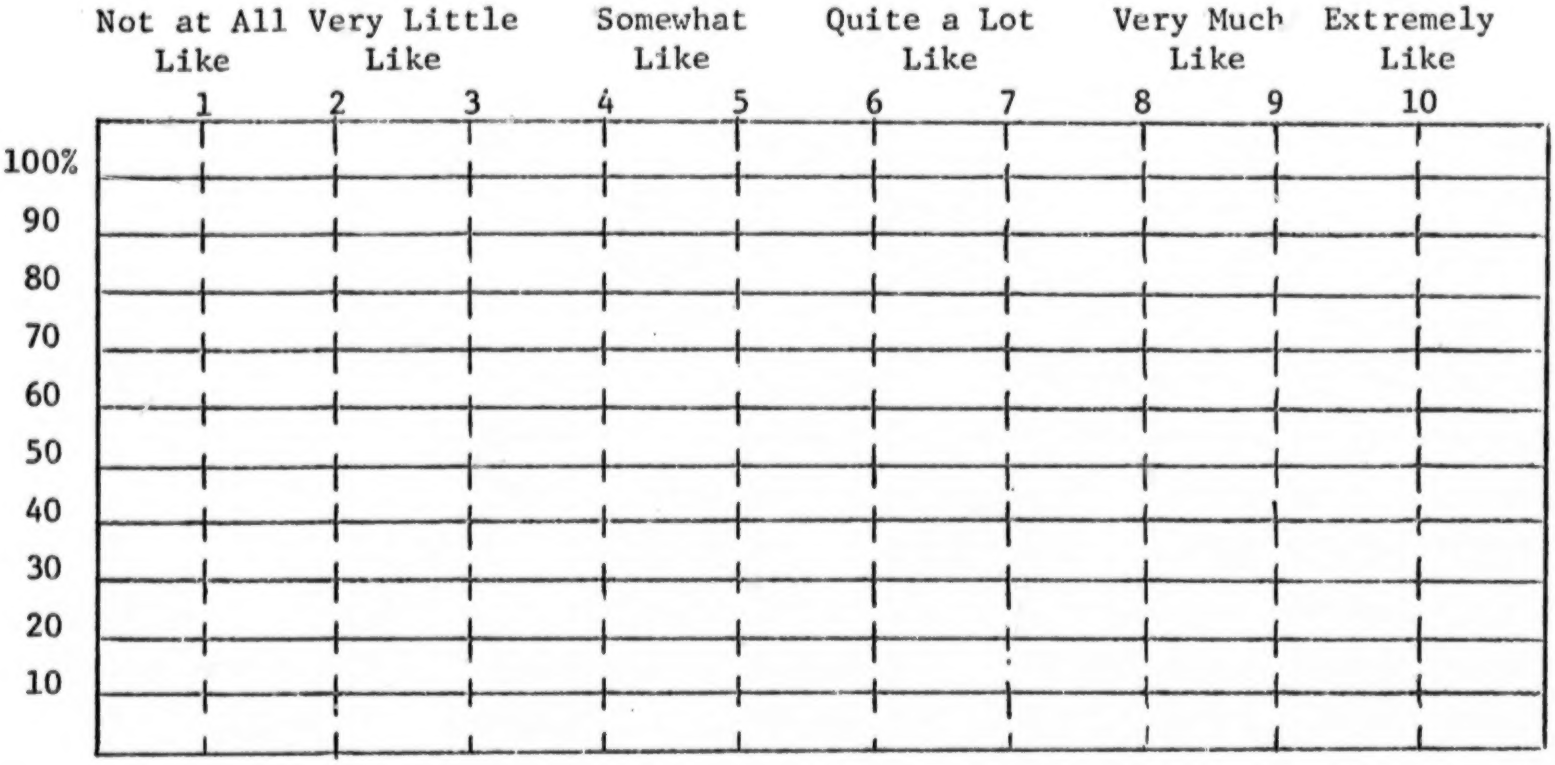
Item VII: Displays interest in teachers' ideas.



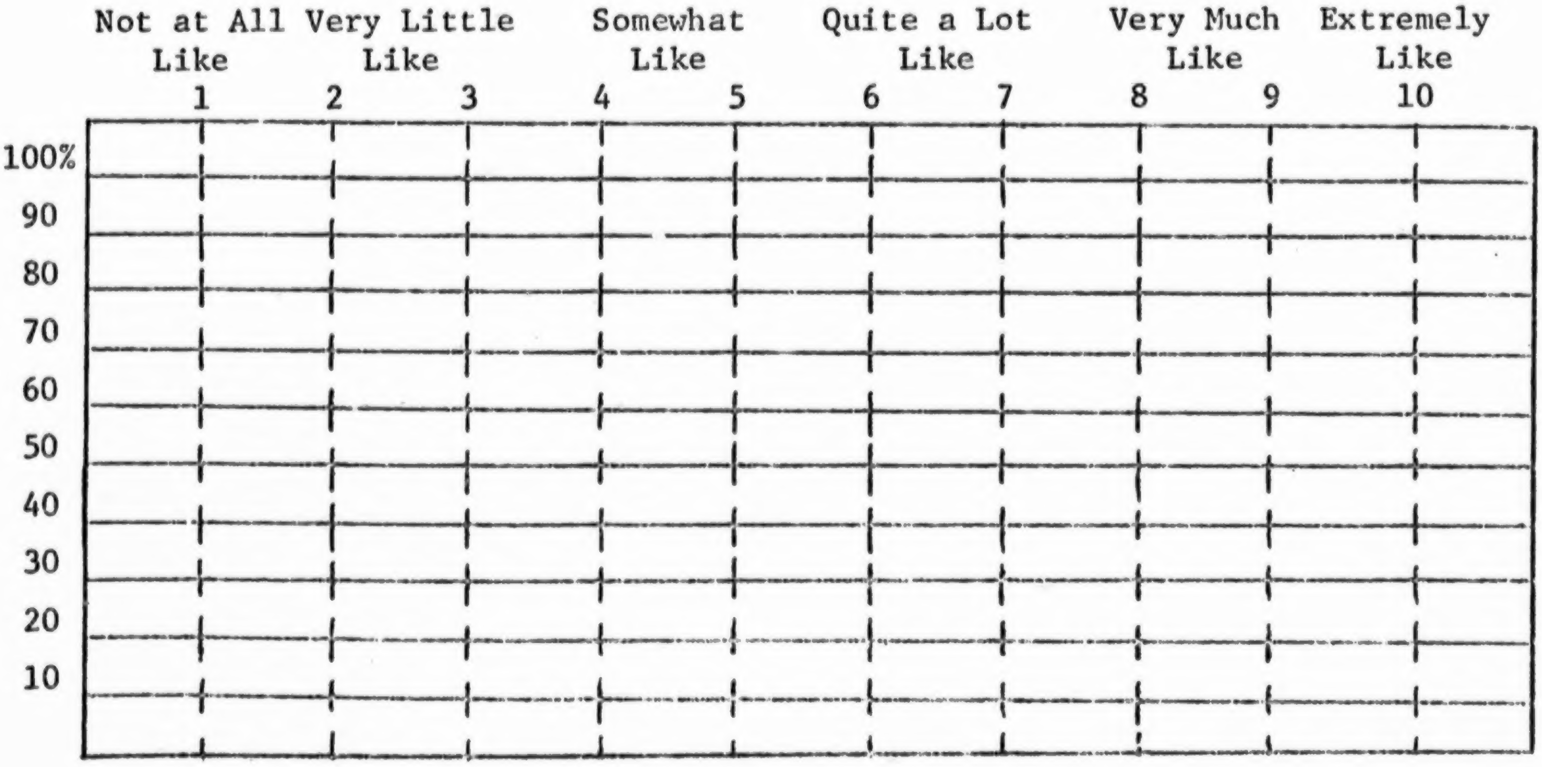
Item VIII: Enlists participation by teachers in making decisions.



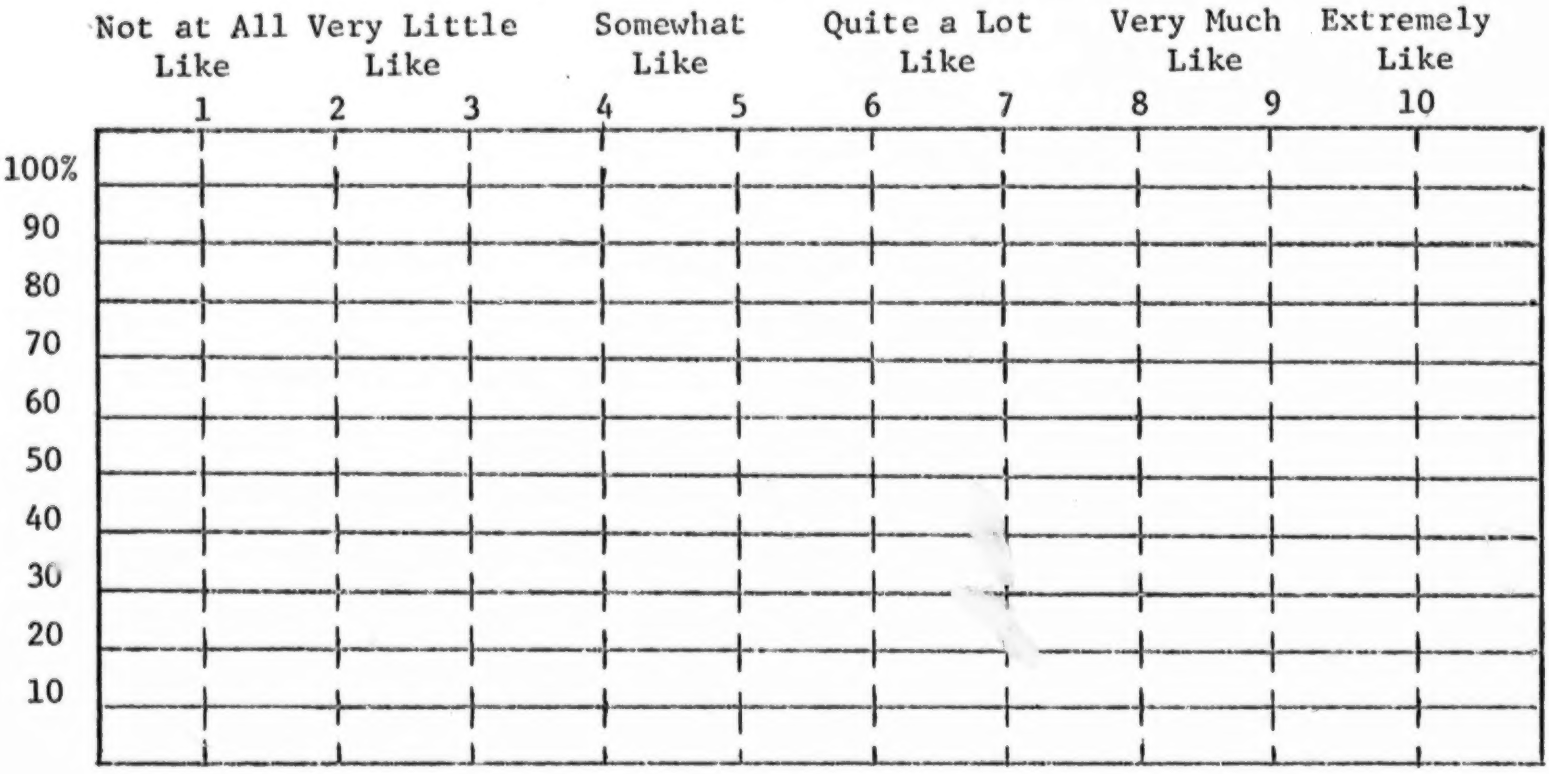
Item IX: Gives teachers a feeling of support in front of pupils or other teachers.



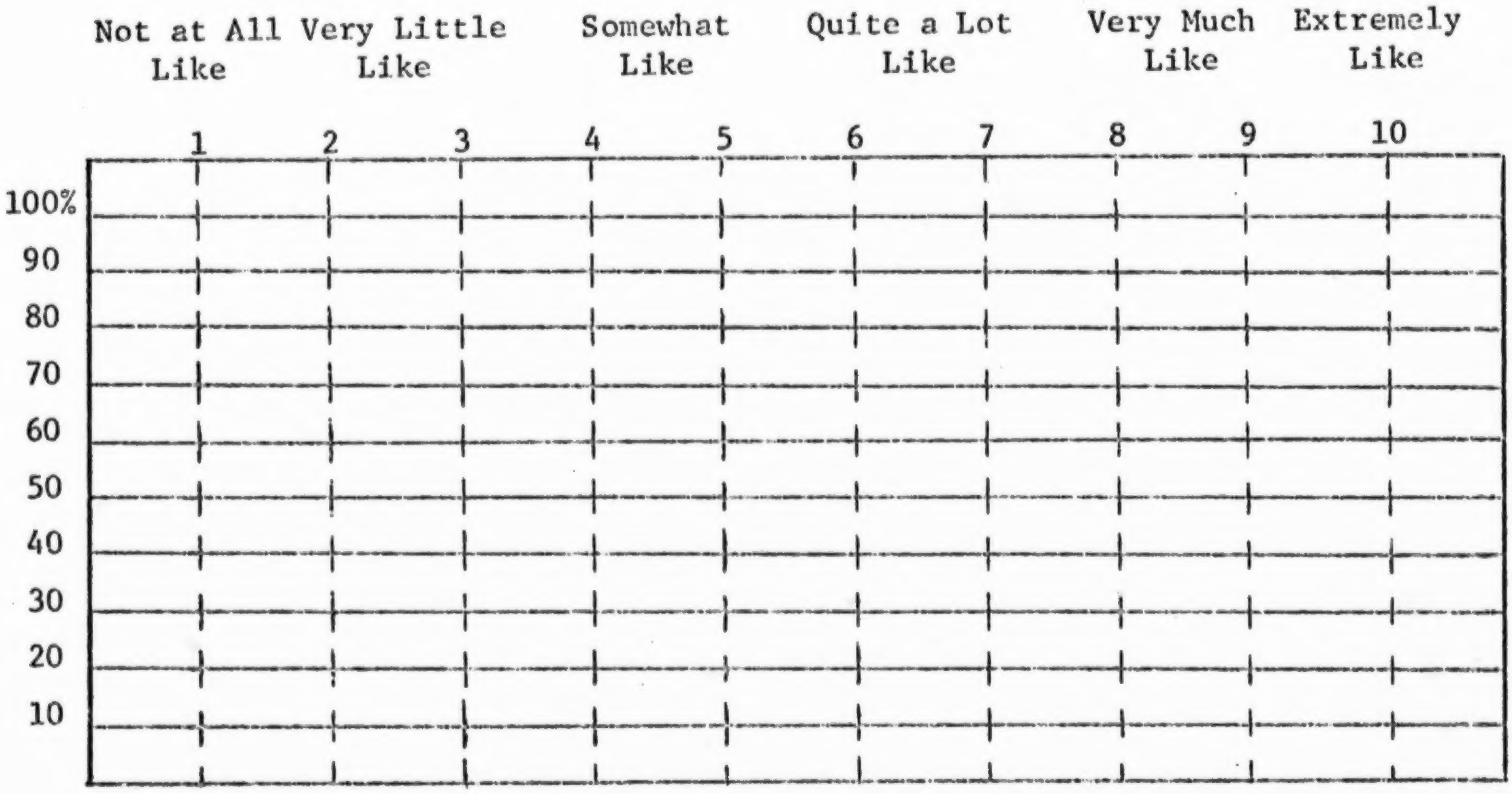
Item X: Treats teachers with respect and courtesy.



Item XI: Gives teachers the feeling that their work is important.



Item XII: Respects teachers' authority regarding pupils' grades.



APPENDIX B

TABLES OF SUPPORTING DATA

B-1

Distribution of Schools by Stratification Categories*

	COMPLETED STUDY	TOTAL SCHOOLS FROM which sample was drawn	% COMPLETED
BY SCHOOL SIZE: (Number of students enrolled)			
200 - 500	84 schools	1,804 schools	4.7%
500 +	122	2,639	4.6
	206	4,443	4.6
BY DISTRICT SIZE: (Number of elementary schools in the district)			
1	16	246	6.5%
2 - 10	80	1,479	5.4
11 - 40	101	1,713	5.9
41 +	9	1,005	1.0
BY UNIFICATION STATUS:			
Unified	106	2,649	4.0%
Non-Unified	100	1,794	5.6
BY COUNTY ELEMENTARY SCHOOL DENSITY: (Average number of elementary schools per district in the county)			
1 - 2 schools	27	433	6.2%
3 - 7	47	956	4.9
more than 7	132	3,054	4.3

* All categories based on information from the 1967 Directory of Administrative and Supervisory Personnel in California Public Schools.

Distribution of Districts Represented in the Project
by Stratification Categories*

	COMPLETED STUDY	TOTAL DISTRICTS FROM which sample was drawn
BY DISTRICT SIZE: (Number of elementary schools in the district)		
1	16 districts	237 districts
2 - 10	68	323
11 - 40	46	102
41 +	5	10
	135	672
BY UNIFICATION STATUS:		
Unified	72	216
Non-Unified	63	456
BY COUNTY ELEMENTARY SCHOOL DENSITY: (Average number of elementary schools per district in the county)		
1 - 2 schools	24	209
3 - 7	35	225
more than 7	76	238

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* All categories based on information from the 1967 Directory of Administrative and Supervisory Personnel in California Public Schools.

B-3

Analyses of Covariance Showing Effects of Feedback Commitment and Interaction of Feedback and Commitment

	Source of Variation	Sum of Squares	df.	Mean Squares	F:
Item 1	Feedback	1.33	3	.44	1.171
	Commitment	1.35	2	.68	1.783
	Interaction	1.92	6	.32	0.846
	Error	73.37	193	.39	
	Other	14,031.40			
	Total	14,109.37			
Item 2	Feedback	3.34	3	1.11	1.753
	Commitment	0.57	2	.29	0.449
	Interaction	3.60	6	.60	0.944
	Error	122.54	193	.63	
	Other	9,921.00			
	Total	10,051.05			
Item 3	Feedback	6.73	3	2.24	3.424*
	Commitment	0.31	2	.16	0.236
	Interaction	1.53	6	.25	0.390
	Error	126.38	193	.65	
	Other	11,173.83			
	Total	11,308.78			
Item 4	Feedback	1.40	3	.47	0.948
	Commitment	2.06	2	1.03	2.096
	Interaction	2.25	6	.37	0.765
	Error	94.60	193	.49	
	Other	11,479.07			
	Total	11,579.38			
Item 5	Feedback	1.57	3	.52	0.861
	Commitment	.08	2	.04	0.068
	Interaction	.48	6	.08	0.130
	Error	117.02	193	.61	
	Other	11,621.06			
	Total	11,740.21			

* $p < .05$

B-3 (Continued)

	Source of Variation	Sum of Squares	df.	Mean Squares	F:
Item 6	Feedback	2.02	3	.64	1.070
	Commitment	1.45	2	.73	1.153
	Interaction	5.35	6	.89	1.415
	Error	121.62	193	.62	
	Other	10,379.90			
	Total	10,510.34			
Item 7	Feedback	2.67	3	.89	1.576
	Commitment	1.18	2	.59	1.049
	Interaction	4.31	6	.72	1.271
	Error	109.25	193	.57	
	Other	12,562.08			
	Total	12,679.49			
Item 8	Feedback	3.44	3	1.15	1.708
	Commitment	.19	2	.10	0.137
	Interaction	5.27	6	.88	1.310
	Error	129.34	193	.67	
	Other	11,923.24			
	Total	12,062.48			
Item 9	Does not meet the assumption of parallel slopes for analysis of covariance.				
Item 10	Does not meet the assumption of parallel slopes for analysis of covariance.				
Item 11	Feedback	1.33	3	.44	0.858
	Commitment	.56	2	.28	0.110
	Interaction	4.15	6	.69	1.342
	Error	99.56	193	.52	
	Other	14,560.68			
	Total	14,665.73			
Item 12	Does not meet the assumption of parallel slopes for analysis of covariance.				
Items 1 - 6	Feedback	66.87	3	22.29	1.765
	Commitment	18.93	2	9.47	0.750
	Interaction	42.81	6	7.13	0.565
	Error	2,437.63	193	12.63	
	Other	409,599.70			
	Total	412,165.94			

Items	Source of Variation	Sum of Squares	df.	Mean Squares	F:
7 - 12	Feedback	33.19	3	11.06	0.957
	Commitment	4.38	2	2.19	0.189
	Interaction	47.50	6	7.92	0.685
	Error	2,230.31	193	11.55	
	Other	508,200.43			
	Total	510,515.81			
1 - 12	Feedback	176.0	3	58.67	1.414
	Commitment	27.0	2	13.50	0.301
	Interaction	166.0	6	27.67	0.667
	Error	8,008.0	193	41.49	
	Other	1,828,884.0			
	Total	1,837,261.0			

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